Suggestion Support System for Healthcare Facilities in Saudi Arabia: An Assessment Framework

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Abstract

Saudi Arabia has developed an ambitious vision, Vision 2030, where the healthcare industry is one of the significant focus areas, making the healthcare industry more efficient and effective is crucial to attracting the private sector and making this vision a reality. Therefore, improving healthcare organisations' performance and competitiveness is necessary to achieve this sector's vision. In such a continuous improvement journey, suggestion systems can be considered an essential continuous improvement tool that identifies the industry's shortfalls and allows for potential future opportunities. It was found that the classical suggestion systems' development process is subject to human behaviour that might discourage overall participation. Thus, interactive and straightforward systems will encourage productive participation. Furthermore, a study showed that employee creativity and positive engagement remain crucial in successful suggestion system implementation. Therefore, simplicity is considered the critical success factor in any suggestion system development and implementation process. The goal of this study is to develop an assessment framework for Saudi healthcare suggestion systems.

A thorough review of the literature highlighted eighteen variables that act as drivers for the suggestion system's success. To account for a technology evaluation parameter, we adopted Nielson's definition of usability. He defines usability as a phenomenon that consists of five major factors: learnability, efficiency, memorability, error recovery, and satisfaction. A further understanding of the relationships between the suggestion system drivers and the adopted technical evaluation parameter's definition are investigated. A questionnaire on the eighteen variables was conducted, and 138 responses were collected. Based on a series of scientific analyses, the researcher identified three significant latent factors affecting the usability of a healthcare suggestion system: the Personal factor, System and Institutional factor, and Social Support factor. A maturity model with three levels of maturity was developed. The first level was defined as Low level, the second level was defined as a Medium level, and the third level was the High one. An Analytical Hierarchy Process (AHP) was performed to prioritise variables within each construct and among the three latent factors. AHP showed that the most critical factor is the Personal factor, followed by the System and Institutional factor, and then the Social Support factor. The first latent factor, the Personal one, includes the following suggestion system success variables: Reward, Ease of Use, Clear Scope, Autonomy, Trust, anonymity, Problem Solving, and Feedback. Under the second latent factor, System and Institutional, the success variables are Resources, Supervisor Support, Training, Publicity, Colleague Support, Compliance, and Equality. While the Social Support factor listed variables are Social Media and Social Networking.

In order to test the developed model, two Saudi healthcare facilities were investigated. Furthermore, the developed model was found useful not only in assessing the current state of their suggestion systems but also in identifying the potential improvement opportunities. Having a prioritised list ensures that organisations can focus on improving factors that have a higher impact on the overall usability of the system.

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Abbreviations

AHP	Analytical Hierarchy Process
CR	Consistency Ratio
df.	degrees of freedom
EFA	Exploratory Factor Analysis
EV	Eigen Value
FA	Factor Analysis
High	the High level of the refined maturity model.
Low	the Low level of the refined maturity model.
KMO	Kaiser-Meyer-Olkin measure of sampling adequacy
Medium	the Medium level of the refined maturity model.
Sig.	Significance level

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Chapter 1 : Introduction

1.1 Background

Suggestion systems are considered among the most importantly, continuous improvement mechanisms. Therefore, to make a successful suggestion system, the development process should go through three major phases. The first phase is the conceptualisation of ideas; the second is the management of the acquired ideas, while the third one is the feedback and participants rewards (Frese and Fay, 2001).

In their research, Fairbank et al. (2003) found that the classical suggestion systems development process is subject to human behaviour that might discourage overall participation. They believe that interactive and straightforward systems will encourage productive participation. Furthermore, Grant and Ashford (2008) showed that employee's creativity and positive engagement remain a crucial aspect in successful suggestion system implementation. Therefore, simplicity (usability) is considered as one of the critical success factors in any suggestion system development and implementation process (Mehrajunnisa et al., 2020).

Furthermore, studies also revealed that hundreds of suggestion systems highlighted the factors like usability improvement, reduction in the service time, improvement in sales, enhancing user productivity and decrease in the maintenance cost as one those, which can contribute in providing a high return on investments (Turrel, 2002; Marcus, 2002 & Ferre et al., 2005).

1.2 Aims and Objectives

The present research's main aim focuses on developing an assessment framework for suggestion systems in Saudi healthcare facilities.

The specific objectives are as follows:

1. Identify the suggestion system success factors and their implementations and limitations.
2. Adopt a technology evaluation parameter, usability, define its fundamentals and relationship with suggestion systems success drivers.
3. Design an assessment model.
4. Validate the developed assessment framework using two selected Saudi healthcare facilities.
5. Propose improvement plans for the assessed Saudi healthcare facilities using the refined maturity model as a guiding tool.

1.3 Research Contribution

This research aims to address the following questions:

1. Which factors are considered critical for the success f of a suggestion system?
2. How to develop a suggestion system assessment framework based on a usability concept?

3. How to utilise the developed assessment/evaluation framework to evaluate two Saudi healthcare facilities and identify future improvement opportunities?

Therefore, the following influences can be considered as a significant contribution of the present research:

1. Identifying suggestion systems success factors.
2. Linking the defined suggestion systems' success factors to technology using the concept of usability.
3. Developing an assessment framework.
4. Validating the developed assessment framework based on selected Saudi healthcare facilities.
5. Proposing improvement plans for the assessed Saudi healthcare facilities using the refined maturity model as a guiding tool.

1.4 Thesis Structure

The following thesis is divided into eight chapters. Chapters 1 & 2 revolves around the general introduction and reviews the literature related to suggestion systems success factors and their implementation issues.

Chapter 3 illustrates the adopted methodology and methods used in this research, highlighting the data collection method and its analysis.

Chapter 4 shows the overall statistical analyses and factor analysis results. This chapter will propose the revised factor analysis model based on the expert's feedback through interviews. Furthermore, the Analytic Hierarchy Process (AHP) technique will be applied to identify priorities among the resulted Explanatory Factor Analysis (EFA) model based on its related interviews too.

Chapters 5 and 6 explore two case studies in two Saudi healthcare facilities. These chapters test and validate the developed assessment model and demonstrate how the suggested model could propose improvement opportunities and recommendations.

Chapter 7 compares and analyses the assessment results of the two cases studies.

Finally, Chapter 8 concludes with a discussion, and future research recommendations are outlined.

Chapter 2 : Literature Review

2.1 Introduction

Creativity is an essential ability a person can possess (Fairbank et al., 2003). However, managing it involves several limitations and contradictions (DeFillippi and Sydow, 2016), requiring employees to integrate opposing plans (Smith and Lewis, 2011). Through such systems, employees would need to consolidate schedules and requirements, which are conflicting (Ostacher, 2020).

Similarly, the products' specifications and cost are paid special attention by the product development companies, when going through the process of their creation (Argote and Miron-spektor, 2011). On the other hand, employees in various parts of the world have to think innovatively while finding and implementing solutions within organisational constraints (Baer et al., 2003). Innovation is mostly associated with creativity, and both of them are often discussed in the literature explaining different levels of creative works done by the employees (Anderson et al., 2014). In this regard, creativity is defined as the submission of fresh and beneficial ideas, while the objective of innovation focuses on the implementation side (Amabile et al., 2005). Moreover, three stages of generating ideas, promotion and implementation play an important role in creativity domain. During the first stage, the focus is on developing new ideas (Amabile et al., 2005). The second stage aims at selling this idea to an appropriate supporting group (Janssen and Van Yperen, 2004). The last stage, implementation, focuses on the application of the concept involving members of the organisation. Employee creativity and innovation have been considered significant behaviour outcomes, affecting the organisation's decisions while

adjusting to different work environments (Liu et al., 2016). Lasrado et al. (2017) tackled another aspect of employee behaviour, Disruptive Behavior Support. It is related to the response of the organisation to the implementation of new ideas. He explained that the management should support its employees when they feel unexpectedly confused at work after implementing a suggestion system. Lasrado et al. (2016) insisted that any obstacles and difficulties can affect the system negatively.

Nonetheless, people cannot be forced to generate ideas; they need to feel comfortable in their environment to provide their ideas willingly (Liebowitz, 2005). Employees should voluntarily participate and contribute to the suggest system (Lasrado et al., 2017). For this reason, a suggestion system would help alleviate any pressure caused by suggestion solicitation.

The Suggestion System is the process of gathering, evaluating and implementing ideas produced by the organisational employees (Van De Vrande et al., 2009). These systems are considered a standardised procedure focusing on soliciting ideas from all organisation employees, not just from a selected group (Fairbank et al., 2003). For the effectiveness of the scheme, Ostrowski (2017) argued that the implementation strategies in addition to systematic schedule procedures and devotion to suggestion systems, add to its implementation success. He also added that the employee feels empowered to evaluate his idea before submitting it to the company.

Shair (1993) shows a potential gain of $13 against each dollar used in administrating this kind of systems. Also, it is observed that organisations have acquired an overall

financial gain of more than $7000 by using these various types of suggestion systems (Verespej, 1992).

Furthermore, the British navy has been using suggestion systems since the seventeenth century and encouraging workers to produce innovative suggestions. Afterwards, the notion of suggestion support systems has been coined and developed into a complete decision support system. These systems are often referred to as an idea management system that focuses on gathering "new" ideas and subsequently developing a comprehensive toolset for performance measurement (Turrell, 2002).

In contrast, according to many studies related to suggestion systems, researchers found a drawback when the organisations encouraged their employees to share knowledge using any formal system (Huang et al., 2020). In this regard, Fairbank et al. (2003) indicated a lack of motivation on the part of workers as one of the significant shortcoming in the success of Suggestion Support Systems. Another study on fifty UK companies found that most of the available programs did not conform to the initial level expectations (Turrell, 2002). Therefore, we must evaluate the significant parameters that mainly contribute towards a successful suggestion system. The existing literature highlights various factors indicating the effective implementation of suggestion systems. The following section focuses on these factors and discusses each one of them in more details.

2.2 Suggestion Systems Success Factors

This section presents the literature review emphasising various stages of any successful suggestion systems. The first of these factors is anonymity.

2.2.1 Anonymity

Pissarra and Jesuino (2005) discussed various elements dealing with the anonymity and success of suggestion systems. They identified content and process-related elements of anonymity. In the process element, the focus is on the deliverance, while in the content part, the focus is shifted towards the inputs of the participants. Also, in the content part, participants do not know about the identity of the idea generator. For suggestion systems, the process anonymity is essential to help gain faith in the system. Participants should feel that the management is treating each suggestion fairly, irrespective of who is suggesting (Mao and DrAndrea, 2019). For the content anonymity, people do not want someone else to steal the idea and refine it to submit it as their idea.

Fjermestad and Hiltz (2000) studied the success of the anonymous suggestion systems (85%) They went on to suggest that the situations in which diversity of thoughts is required, it is better to follow anonymous inputs. Pissarra and Jesuino (2005) defined that anonymity refers to the phenomenon in which the identity of both message originator and message receiver is unknown.

Anonymous processing of suggestions can stimulate the idea generation process due to fewer chances of interpersonal conflicts; it lessens the intensity of inhibition and encourages the involvement of participants in the presentation of unusual ideas.

Anonymity can help present smooth impromptu comments and awkward phrases (Desanctis and Poole, 1994). Several studies show that anonymity decreases a different kind of interpersonal barriers that act as inhibitors between personalities (McLeod, 2011). Anonymity promotes "blue sky" ideas and reduces the chances of

unnecessary submissions to the group dynamics of various norms (Postmes et al., 2005). When ideas are separated from their originators, it further promotes the generation of more and new creative ideas that certainly improves the performance of any team with the inclusion of more quality suggestions.

2.2.2 Autonomy

Researchers have described autonomy as a critical factor in organisations to manage innovations (Rekonen and Björklund, 2016) successfully. Employees' positions that encourage autonomy promote creativity, too (Fairbank et al., 2003). Axtell, et al. (2000) found that autonomy and the number of suggested ideas are closely related. In the workplace, autonomy provides employees with a chance to select their methodology of achieving goals (Amabile, 1998). Lasrado et al. (2016) believes that giving the employees freedom to achieve their goals enhances their creativity and, more importantly, feeds the person's inner motivation to think and submit ideas. Organisations can rely on intrinsic motivation (Stelson, 2017) to solve issue of employee participation in the suggestion system.

McLean (2005) claimed that organisations, where the culture is supportive towards autonomy, more creativity and innovation is observed than those organisations that do not support the autonomy. Besides, creativity, the culture of autonomy also develops and encourages intrinsic motivation among its workers.

In a suggestion system, autonomy refers to giving the employees the freedom to submit suggestions at any time and for any operation within the organisation. The management should give workers independence in pursuing entirely new "blue-sky" ideas.

2.2.3 Clarity of Scope

Scope refers to the type of ideas a facility is seeking from its employees. Ideas can be either substantial or modest; all employees can participate, otherwise, participation can be limited to a few divisions in an organisation. Van de Vrande et al. (2009) observed that the scope of the ideas is just like a net that the organisation provides to its employees in order to determine their boundaries for the sake of idea creation and gathering. If the healthcare facility widens its scope, it can only collect small suggestions (Stenmark, 2000). Robinson and Schroeder (2003) focus on small ideas and argue that we can only achieve excellence when we pay attention to the details embedded even in the small suggestions. Similarly, these small suggestions have special significance due to their relation and reflection of context-specific situations, which is difficult for the others to duplicate; these ideas offer a more competitive advantage and are more difficult to identify and copy. (Robinson & Schroeder, 2004). They can accumulate over time and lead the way to bigger ideas, particularly when they are open for discussion, and when they can prompt other employees to expand them and improve their goals. Adopting a broader level of scope for the collection of minute ideas also enhance the usefulness of the system, because it is observed that the workers' with small kind of ideas are more in number as compared to people with bid level of ideas. Therefore, any support to initial level ideas is critical and proper advertisement, and promotion can be done in this regard about various incentives to attract more people for active participation. Conversely, if the scope of suggestions support system covers only the big level ideas, then lot of workers' may not be able to contribute to this system. By doing this, many blue-collared employees can be automatically excluded from this

exercise regardless of the quality of their ideas. Ackah et al. (2020) observed that in Japanese systems, organisations focus more on the creation of small ideas and depend more on them for the improvement in organisational performance. However, it is a sharp contrast to the US companies, which focus more on the big ideas of suggestion support systems for quality enhancement.

Axtell et al. (2000) also supported the notion of small ideas for system strengthening and of the opinion that suggestions from the shop floor can have an impact on suggestion systems; they suggested that lower to medium level organisational employees can play their active role in providing small ideas rather than basic new ideas. The degree of responsibility they hold encourages them to take charge of the change (McAllister et al., 2007; Parker, 2014). Responsibility and small ideas generation can be closely linked. When a worker holds a specific job description, he does not often worry about the whole company and its managers. He focuses mainly on a specific area, consequently generating ideas related to that area.

Van de Vrande et al. (2009) observed a strong relationship between number of registered suggestions and the feedback mechanism. However, the more the number of suggestions, the slower the feedback. Besides, it is found that a small level of suggestions can also impact on another component of the usability model, which is a satisfactory experience. The management is more likely to implement small ideas fast, encouraging workers to produce more of them, because when they see the fast implementation of their ideas and its impact on the working, the phenomenon enhances their confidence level and further motivates them.

2.2.4 Colleagues Support

Inter-colleagues support among the workgroups is one of the essential factors to enhance these systems' usability (Haines et al., 2018). In a study conducted by Kirschenbaum (2012), he underlined the importance of goal clarity and unity among workers as one of the two critical pillars in knowledge sharing. Other researchers also revealed the collective role of peers to encourage productive ideas (Susanne & Reginald, 1994). Furthermore, discussions of premature ideas among a workgroup can motivate employees to submit innovative thoughts. Collaboration encourages workers to create ideas and, consequently, can start thinking creatively; this will allow the supervisor to "set workers mind" to think creatively (Amabile et al., 2005). Frese and Fay (2001) suggested that people do two kinds of screening before they decide to embrace an idea. Before taking the initiative, they ask themselves whether it is good enough to get a reward. Then, they may consult with their supervisor or their colleagues. Thus, these two processes ensure that employees would submit more good ideas than bad ones.

At work, it is essential that one feels the need for a creative requirement defined by Unsworth and Clegg (2010) as the perception that an employee should generate work-related ideas. Binnewies and Gromer (2012) contended that working in a creative environment makes workers more creative and encourages co-workers to accept the generation of new ideas and thus encourage employees to communicate their ideas at work. They also explain that employees who strongly believe in creative ideas are more motivated towards their implementation. Similarly, it is also

necessary that the organisational culture encourage creating and implementing new ideas as one of the norms.

Klein and Lechner (2009) highlighted the benefits of peer support and the competition generated among colleagues to submit new and innovative suggestions. The colleague or co-worker support can have a range of benefits because the front-line workers or on-the-job workers have more knowledge of the job-specific problems. Co-workers could be used to bounce off initial ideas or to brainstorm possible pros and cons of solutions and strategies. Co-worker support is also important when implementing a new idea. There could be a healthy competition if properly managed among employees for the submission of new ideas. If there is a possibility of a group suggestion system, more formal and planned improvements could also be created. Marin-Garcia et al. (2011) highlighted that although there is no guarantee that team suggestion systems will be more successful, there are possibilities of better planned and higher quality suggestion generation process. According to Lasardo (2017), when workers and colleagues collaborate, the organisation can have high-quality suggestions. This is described as a proactive behaviour or attitude. On the other hand, poor relations between groups can hinder creativity. Lasardo also believes that teamwork or team coordination refers to collective working and sharing of ideas among employees before finally submitting them towards the support of final decision making (Stelson et al. 2017).

If the team members enjoy positive relationships among them, it also leads to generating new ideas. These relationships help in confidence-building measures among them, and they feel more comfortable in the sharing of both tacit and explicit

knowledge. Lasrado et al. (2017) explained that when employees have more knowledge and experience in their fields, they have the potential of submitting more creative suggestions.

2.2.5 Compliance

In their experiment on 1005 managers from diverse European companies, Stöber, Kotzian and Weißenberger (2019) investigated the effect of specific training on the issue of compliance. They showed the importance of the code and its design in the adoption of a compliance program. Research studies have shed light on corporate scandals and the financial crisis in 2008/2009 in relation to compliance issues and factors associated with ethical concerns of the business environment (Berings and Adriaenssens, 2012; Elm and Radin, 2012; Gunia et al., 2012). Organisations started to adopt compliance programs in order to ensure that their decisions are aligned with companies' legal regulations and ethical principles (Ferrell et al., 2017). The main goal of the management control system is to bring a change in the behaviour of employees in relation to their personal and controlling actions (Merchant and Van der Stede, 2012). Action, personnel and cultural controls all offer guidance to the employees, help them understand the management expectations, and provide values adopted by the organisation. Employees who wish to share their ideas will understand that there are values and norms set by the Saudi culture.

According to Weber and Wasieleski (2013), organisations adopt compliance programs such as code of conduct, compliance training and whistleblowing in their daily practice. These organisations impose their framework on their employees and

create compliance training programs to help them perform their daily tasks. Using the whistle-blowing code helps the organisation detect misconduct more easily.

In conclusion, each healthcare entity should operate under a higher authority which would be responsible for compliance. If an entity is composed of several facilities, the compliance program should operate on each facility and the organisation level simultaneously. In the annual effectiveness organisation review, this process can help point to opportunities for improvement. Organisations that do not conduct annual reviews of their structures may have weakness issues in their underlying structures. Finally, an effective suggestion system needs a clear compliance program that can help avoid personal, cultural and religious collision (Moreira et al., 2019).

2.2.6 Ease of Use

In the past decades, researchers have advocated and encouraged IT's use in the successful usage of suggestion systems (Van De Vrande et al., 2009). Submitting and monitoring suggestions can be easy, making IT systems a viable platform to implement suggestion systems. However, initial data entry on behalf of workers creates a first stage constraint because all workers have either no accessibility or no competency to enter data. Therefore they feel hesitant in using an IT application, particularly those with lower academic skills levels. The Healthcare facility should make the system available for all its employees. Circulating data or suggestion collection must be ensured in critical points around the organisation to enhance both the accessibility and utility of these systems. Displaying the forms at prominent places in the organisation can continuously remind workers to submit their

suggestions and ideas. To ensure the effectiveness of the IT systems, the management can distribute workstations to those places, where workers have no access to computers. These systems can be either conventional or latest smart technology tablets considering such systems' expected benefits (Liberati et al., 2017). Also, the ease of handling must be ensured in these suggestion systems, whether done in person, by mail, or by other means. As agreed by Lasrado et al. (2016) in his findings that the system must be user friendly from both ease and simplicity point of view in order to encourage employees to submit their suggestions with no obstacles.

Gamlin et al. (2007) highlighted the possible uses of IT to support and improve suggestion systems. In their opinions, the following are additional functionality that IT can provide to a suggestion system.

1. Ideas can be gathered with the help of easy-to-fill data collection forms, which can be customised according to the skill level of the users. Multiple choice questions or event-related questions can be added to make them more beneficial. Having several drop-down menus and multiple-choice questions can reduce the amount of time and effort taken by submitters to input their suggestion.

2. Design of databases must ensure quick accessibility to all suggestions and ideas. This database can also provide insights based on other similar suggestions provide and feedback on those suggestions. If they were successful, then one can look at the reason for their success. If people reject them, then one can look at reasons for rejection and possibly learn from the past mistakes.

3. Design of feedback system for the idea initiator. It means that the person, who submits the idea receive an automatic acknowledgement about the receiving of the idea. The feedback system becomes quicker and more productive with the use of IT. With companies spread over many cities and countries these days, it is easier to reach most employees through a networked suggestion system.

4. An evaluation system is an integral part of any suggestion system that primarily deals with the fast receiving, screening and evaluation of ideas before, they are processed for further reviewing. An online or IT-based suggestion system can provide a transparent mechanism to look at the evaluation criteria and the actual evaluation of suggestions in a suggestion system.

5. Participants can earn various points based on the quality of their submitted ideas and their subsequent acceptance. The suggestion systems also help employees in tracking down the total reward they have earned at any point. In this regard, different incentive schemes can be introduced to encourage employees to submit their ideas.

6. Different mechanisms can be devised to facilitate frequent and productive employee interaction with each other for idea generation and collaboration. With technologies such as blogs and chat rooms, employees can discuss their ideas with colleagues at other locations and in other departments; therefore, they can help refine the suggestion.

7. A global feedback system needs to be established for obtaining expert advice from various experts irrespective of the geographical boundaries. Often suggestions

come from outside the subject specialities. Having access to subject experts will help in filtering the idea and improving it for effective implementation.

Lasrado et al. (2017) have insisted that organisations have dedicated individuals or units to supervise the suggestion system and deal with its related issues.

2.2.7 Equity

With the increase of diversity in the labour force, discrimination has become an important issue, particularly with employment equity and affirmative action; recruiting people from minorities has become a sensitive issue. (e.g., Heilman et al., 1998; Heilman and Bladder, 2001; Sass and Troyer, 1999). The government legal decision in this issue has little effect on changing the role of women in jobs traditionally held by men (Falkenberg and Boland, 1997). They suggested that the government help the community members change their opinion toward the employment equity law, particularly in an environment where both men and women have strong beliefs in traditional gender roles (Heilman, 1997; Konrad et al., 2000; Oakhill et al., 2005; Powell, 1987).

The employment equity law has had a great effect on the minority candidates who apply for jobs when they are less qualified for the position. The stereotypes are created by the community members create are based on their perception of what each gender can perform in his/her job (Koberg and Chusmir, 1991). Men, for example, are seen individuals who can hold jobs involving physical strength, endurance, while women are better off working at home or holding nurturing positions in society (Powell, 1987; Williams and Best, 1990).

In their research study, Gupta et al. (2019) offered insights into the experience of men and women in their workplace. Authors have mainly focused on job satisfaction, quality of mentoring, sexual harassment and opportunities for career advancement. After noting differences in responses between men and women, they called for equality in the workplace between genders.

Research studies have also confirmed that organisations that eliminate discrimination treating others fairly, show strong support for the employment equity program (Beaton and Tougas, 2001; Veilleux and Tougas, 1989). On the other hand, employers show lack of support in fulfilling their training and capacity building requirements (Kravitz and Platania, 1993), besides facing stringent opposition, when they display clear preferences in their recruitment (Bobocel et al., 1998; Son Hing et al., 2002). Kravitz and Klineberg (2000) showed in their studies that people's reaction to the affirmative action policies varied based, how they perceive the equity and fairness among different organisational practices. It is observed that organisations, where the majority group might use the affirmative action policy when the administration faced the issue of equal qualification among candidates. Minority groups use affirmative action policies when they feel underrepresented or feel preferential treatment is being applied. Konrad and Linnehan (1995) discussed the terms "identity-blind", supported by majority groups, and "identity-conscious", supported by minorities.

Kaminsky and Hoglund (2019) conducted a research study on the Telephone nursing program to encourage equitable healthcare based on the five conceptual models of creativity: Denial, Responsible defence, Awareness among people,

Openness towards suggestions and Supportive actions. Some participants expressed their unawareness about inequity in the health industry while others showed their desire to learning more about equity in healthcare and its training programs.

The World Health Organization (WHO) describes that equity among people is achieved, when there is a complete or partial absence of any form biasedness is ensured both geographically and economically (http://www.who.int/ topics/health_equity/en/). In conclusion, individuals who participate in adding new ideas or suggestions should have an equal opportunity without any discriminations.

2.2.8 Feedback

Another element, which can make any suggestion support system successful is the provision of timely feedback to its employees based on the received suggestions (Sherf and Morrison, 2020). Employees should feel that all their suggestions have useful feedback. Also, this feedback should be detailed, judged relatively and promptly so that workers feel encouraged to continue their system participation. This way, the organisation has the opportunity to build a positive image and a good reputation (Lasrado et al., 2017).

To improve participation, the organisation must create a secure climate in asking for feedback and avoiding a sense of failure (Fairbank et al., 2003). If workers do not receive feedback, they remain unaware of the acceptance or rejection of their suggestions. If they have to wait too long for feedback, they will feel frustrated; this fact may reduce the effectiveness of the system, because, with the passage of time, the workers' may lose interest in the system that eventually reduce their enthusiastic

participation. Turrell (2002) found that those organisations, who have a slow suggestion processing system and takes more than a year to process these suggestions, they can use adopt the latest web-based technology for the collection and speedy processing of the ideas. In this regard, the company needs a better alignment of its policies in line with the vision and mission of the company to boost creativity among its workers'; otherwise, expectations of timely response to suggestions will be difficult. By linking feedback with any form of intrinsic motivation, Oldham and Hackman (2010) proposed that employees, who receive timely feedback are keener and more enthusiastic to perform creative activities. Other researchers also agreed that feedback could result into the promotion of creative and innovative ideas jobs that provide feedback can promote creativity. Therefore, the chances of structured feedback system to receive useful suggestions are higher as compared to a random collection of creative suggestions. It is mandatory that the system must evaluate the suggestions in the shortest possible time with a high level of transparency in order to enhance the stability of the system; consequently, employees can get a high level of satisfaction and feel motivated towards its successful implementation. Verbal feedback that supervisors give can encourage and enhance employee belief in their abilities (Ford, 2000).

If the supervisor should give negative feedback (i.e., when the idea cannot be implemented), the management should be essentially careful. (Fairbank et al., 2003). If he gives critical feedback, it can reduce creativity; on the other hand, if his feedback is constructive, it can lead to an improvement in the quality of creative suggestions of workers. (Amabile et al., 2005). Besides, accuracy and the speed of received suggestions can also play a crucial role in the situation. Web-supported

suggestion support systems can be used to view instant feedback once the employee or the concerned supervisor posts it. The web-based system also helps the tracking and online feedback of the suggestions to further promote the usefulness and active participation of teams. In addition, the instant feedback to these suggestions also creates an impression that management is fully supportive towards this system by giving them timely feedback along with transparent and fair treatment of their suggestions (Axtell, 2000).

In order for the organisation to provide timely and reasonable feedback, a committee should be formed to evaluate the suggestions (Fairbank et al., 2003). However, the members performing the evaluation tasks need to be honest and transparent, while evaluating these suggestions and give their feedback, as this phenomenon creates an impression that the whole exercise is apolitical. On the other hand, if the organisation doesn't select its members with care and merit, there is a possibility that some of the quality ideas may be rejected due to lack of vision and cognitive ability of the members. Similarly, the poor proposal on behalf of the members cannot communicate the real intent or content, especially if the timing of submission and contexts is not adequately taken care. (Stenmark, 2000).

On the other hand, giving the right feedback at the right time is a vital part of the suggestion support system. The ability to provide prompt feedback on suggestions has increased as suggestion systems are becoming more IT-based. Functions like sending a submission acknowledgement to the employee, providing information about what is going to happen next as well as a time frame will encourage participation. Many of the submitted ideas may not be worth for the instant

execution; therefore, it is crucial that the suggestion handlers give constructive as well as detailed feedback that doesn't appear to be judgmental.

In the case of negative feedback, proper justification should be added to make it more comprehensive rather than giving a feeling of merely judgmental. In many instances, unhealthy criticism is found to suppress the innovativeness among workers. However, the justified and healthy feedback can contribute towards improving the quality of any suggestion support systems (Hultgren, 2008). It is especially true when the workers' monitor the progress of their submitted suggestions passing through various stages of the system, their motivation increases significantly. Similarly, adding those features, which increase their understanding of the decision-making process further reduce the chances of their personal biasedness and increase their confidence on the merit of the system (Fairbank et al., 2003).

2.2.9 Goal Setting

Employees can submit, through the suggestion systems, innovative "Blue Sky" ideas, or others more focused on specific targets of an organisation. Litchfield et al. (2011) recommended that management view rules for the aim of improving idea generation.

The goals set for a suggestion system could be the quality-based, quantity-based, theme-based. These goals should be delicately set so that people committed to pursuing their goals can perceive their progress. The goals which the management sets should address the choices of the members who will engage in cognition and

behaviour (Bandura and Locke 2003). The idea generation process should follow the four rules in a typical brainstorming process (Litchfield et al., 2011).

• The first rule is to focus on the generation of new ideas without looking into their merits. In these brainstorming sessions, people are encouraged to throw a limitless number of ideas. However, the duration of the session itself might pose some limitations for the system. Although some of these ideas might not seem viable on initial inspection, once merged with other suggestions, they might become effective.

• The second rule is to avoid criticism. Through this rule, the management proposes an objective in which different alternatives are evaluated without involving them into any sort of conflicts. When any of these members propose ideas in a brainstorming session, the supervisor must avoid criticising them or raising questions about their validity. The key objective is to get all the ideas, no matter how good or bad they can be, and then review them for suitability. Rejecting something on first impressions affects the idea generation process negatively.

• The third stage involves combining different ideas. It is related to define the categories in which generated ideas fall. It also focuses on the competition, which runs among the members to submit the best ideas. When combining ideas, the management can consider implementing the ones that are more viable and effective. Besides, various departments and disciplines may also come up with several ideas; the management needs to combine the feedback from all disciplines and then generate a final idea for implementation.

• In the final fourth stage, the focus is on freewheeling. This rule closely relates to the creativity and personal status. It helps conduct the brainstorming session smoothly during which members can discuss their ideas freely and without judgment. Employees can feel at ease in making their suggestions. This session, in turn, having a positive effect on the overall idea generation activities.

There is a need to generate effective suggestions that fulfil the specific needs of an organisation; these suggestions should be good not only in quantity but also in quality (Lee and Chui, 2019). Different departments within the healthcare facility need a variety of ideas with different magnitudes and strong impact. Some facilities run sessions during which workers submit ideas focuses on specific themes, e.g. efficiency, individual or patient satisfaction, and quality. Van de Vrande et al. (2009) discussed the case of running period themes of suggestion systems. The theme could run for one month; during this month, employees submit ideas related to the theme of the month, which would be the company priority and would harvest long-term and short-term benefits.

2.2.10 Problem Solving

Raising global competition, rising financial dilemmas, changes in jobs, straightening organisational hierarchies have definitely increased the creative problem-solving requirements of employee jobs (Koseoglu et al., 2018). Researchers have indicated that the organisation can use problem-solving as a significant motivation for employees to submit suggestions. Zhou and Shipton (2016) clearly showed that demands of problem-solving leads to underlying motivation in employees to find creative solutions to problems. However, this challenge of problem solving cannot

be seen in isolation. An essential goal of the empowerment literature is to challenge employees to get involved in complex problem-solving activities, which will lessen the decision-making load placed on the top management of the organisation (Sun et al., 2012).

The organisation can use the problem-solving challenge to promote participation in the employee suggestion system. Various factors play an important role to the idea of creating a challenge and the employee acceptance of this challenge and participation (Ibrahim et al., 2020). Initiatives, such as announcing themes or setting saving targets could also motivate employees in the suggestion system. Promoting successful suggestions from the past will also help increase the number of suggestions submitted in an organisation. An organisation needs to address various factors in order to promote this challenge of problem-solving

2.2.11 Publicity

It is emphasised that publicity has a significant impact on a suggestion system in several ways. For one, it creates an awareness of the scheme (Leach et al., 2006; Marx 2008). Awareness and publicity programs are essential for all employees to get a continuous flow of creative ideas (Lasrado et al., 2017).

Besides, it helps the employees feel that the management is committed towards creativity and innovation; it also helps management recognise the employee's successful suggestions through positive feedback and awards (Van de Vrande et al., 2009).

According to Wilson et al. (2010), communication is a critical success factor which results in creating awareness among employees, improve the credibility of the system and inspire them to participate in the system success. All the workers' in an organisation should feel confident that their management is taking an interest in their ideas and suggestions (Belkadi et al., 2020). In this regard, a program can be offered to create awareness among people about the basic elements of any suggestion system. The organisation needs to continually reinforce the need for submitting ideas and highlight the benefits of doing so (Arif & Al-Kuwaiti, 2007). All the employees should be aware of the kind of suggestions submitted, the benefits to the organisation and to the employees submitting the ideas, and the process of submission, evaluation and reward (Marx, 2008).

Different types of promotion programs play an effective role to publicise the idea of suggestion systems; even it is a new system for the workers of different tiers. It is to be ensured that the employees be given regular reminders and feedback about the advantages of suggestions and proposals (Love, 1998).

These programs should focus on the advantages as well the financial incentives that are attached to the successful acceptance of suggestions (Marx, 1995). Moreover, the advertisement of publicity drive should not be time-limited as it must be made a permanent feature of the organisational activities and the management must motivate employees for their successful suggestions appropriately (Stern, 2006). All the employees should be aware of the awards. It is not only the reward but also the necessity of its reinforcement. Because, if people do not see the trail of their suggestions, ultimately, they may lose any sort of interest in these initiatives.

However, it is also important that the significance of these programs should not be overestimated.

The publicity program should include the rule book for the suggestion system; it should highlight suggestion submission, evaluation, the metrics used for evaluation, the feedback process, and the summary of items to be covered in feedback. It should also include a Frequently Asked Questions (FAQ) section. The publicity of past successes and the outcomes of submitted suggestions need to be highlighted. Marx (2008) argues that the awareness program is long and continuous. The main objectives of the program are:

• Creating awareness among employees about the aims, objectives, rules, procedures and benefits of the suggestion support system, besides publicising the various procedures, metrics, and forms used for submission and evaluation.

• To promote and encourage collaboration and self-confidence in the system. Based on the quote "Seeing is believing", the management should inform employees of the success of the system, and this, in turn, will raise confidence in others to submit more suggestions (Wood, 2003).

• To frequently encourage workers' about their creative role in improving the workplace environment and productivity. Workers can be inspired through the people's suggestions, and articles and posters about the organisation's priorities (Wood and De Menezes, 2011).

Through all avenues of communications, employees should be able to feel that their inputs and suggestions are a part of routine business activities (Wilson et al., 2010).

Awareness programs should include all kinds of social media, printed marketing materials, internal meetings and events. The organisation can also promote its suggestion system through sharing its success stories in online blogs, news bulletins, its website and internal staff emails.

2.2.12 Resources

Designating the right resources is critical for the success of any innovation promotion system, like the suggestion system (Bessant & Francis, 1999). Time, money and people can be resources which can lead to the successful implementation of innovative projects (Alves et al., 2007). The management should spend more resources on the generation of ideas and the development of products; the organisation should also seek the help of consultants and researchers to get their advice on creating a non-threatening environment to ensure the success of these systems (Rajabion et al., 2019). Explicitly talking about suggestion systems and the kind of human resource required to ascertain creativity and innovativeness is considered as crucial. Also, attractive incentives to employees can boost their participation towards idea creation, new product development and innovative initiatives. In risk-taking management, the organisation evaluates ideas, handles mistakes deals with change, supports communication, and conducts idea identification (Sun, 2008).

Bunduchi (2009) introduced the idea of organisational slack when talking about the resources that are required for the success of these systems. Bunduchi explained that the organisational slack is the difference between resources an organisation

needs for a successful suggestion system and the available resources in the environment.

This slack can be destructive when the environment of an organisation is rather stable. On the other hand, when the environment of an organisation requires innovation and change, adopting a slack help absorb shocks and allows for experimentation (Tidd, 2010). A company can provide the appropriate level of organisational slack when it offers sufficient time to its employees for the submission of new and creative ideas. It also supports the evaluation and final implementation of the idea into innovative processes, services, products, and systems. Organisations that are more successful in the innovation generation process are the ones that initiate commitment and involvement in the innovation procedure (Tidd, 2010).

It is observed that in order to ensure creativity, managers must give necessary access to critical but related knowledge resources to their workers, and in this regard, the criticality of time is crucial. The management needs to give its employees enough time to generate innovative ideas and explore them (Hilles et al., 2009).

Making the materials and consultants available is crucial. However, providing balanced resources becomes a problem. When the organisation offers too many resources in too much time, workers become overwhelmed and may not search for creative ideas.

Besides, the processing, the evaluation, the feedback and the final implementation of the ideas are all resource-intensive. Technical expertise and an Electronic Health

Record System (Almuayqil, 2015), (Shahmoradi, 2017), (Sheikh, 2019), are considered kinds of resources that are critical for the success of any such systems.

When an employee submits an idea, the management should immediately evaluate it, processed through the system, and ultimately implement it. The conflicting ideas should be revoked or combined for further processing (Firdaus and Ma'arif, 2016). At this point, the management would be promoting innovation, creativity and the new product development through the availability of resources (Alves et al., 2007).

When the organisation chooses appropriate resources, it shows the employees that it is putting "money where their mouth is". The organisation also uses these resources to make materials available, prepare funds for rewards and awards, and promote events and purchase and implement an effective IT system to develop an adequate suggestion system.

2.2.13 Rewards

Researchers have identified reward as an essential factor in the success of any effective suggestion support system (Amabile et al., 2005; Ackah et al., 2020). The critical element highlights the importance of workers' incentives when they submit an idea through the suggestion system (Wynder, 2008). Lasrado et al. (2017) has argued that rewards can play a crucial part in the motivation and encouragement of workers to play an active role in the success of suggestion support systems. Rewards can be either tangible or non-tangible, reflecting the value the idea offers to the organisation. During the processing of the system, Lasrado (2015) discussed organisational impediments, the factors which hinder workers from reaching their

goals; workers should not be working under pressure, following tights and rigid schedules. Doing so can kills their creativity.

Rewards can be divided among workers based on their ideas and proposals, these rewards can be further divided into two broad categories of extrinsic and intrinsic (Baer et al. 2003). Extrinsic rewards are tangible that can be measured, while intrinsic rewards motivate the worker to do a task based on some internal motive rather than looking for some external reward (Brief & Aldag, 1981). It is observed by Frese and Fay (2001) that getting a reward is somewhat related to the suggestion of ideas. However, the companies should avoid linking the generation of new ideas only with financial rewards. Carrier (1998) conducted a comparative study in both small and big sized organisations and found that despite higher financial rewards offered by the big companies, the results of the small companies were almost the same. Ackah et al. (2020) discovered a vast contrast between the average payment of $602, which the US companies offer as a reward to the initiators of suggestion system versus the Japanese, who offer $2.2 for the proposal submitters (Ackah et al., 2020). Nevertheless, it is found that this huge difference between the two amounts has not been able to create any significant increase in the number of suggestions and US companies merely received one percent more suggestions than their Japanese counterparts (Van De Vrande et al., 2009). Results show that the companies which depend on extrinsic methods of motivation to encourage their workers have limited involvement of 10-15 per cent of the employees, while participation was 70-80 per cent when employees did not receive rewards through the suggestion system or when they received symbolic recognition. It is observed that employees tend to start focusing more on financial gains and less on their

genuine creativity in case suggestion system is linked only with financial rewards. This phenomenon further leads to shyness and hesitation among employees to share their ideas with their colleagues (Stenmark, 2000).

The motivation among employees can be achieved by focusing more on both intrinsic and extrinsic rewards (Tung et al, 2020). In this regard, more autonomy can be given to workers besides making their tasks more challenging and relate it with customers' feedback. However, extrinsic rewards must be performance-based and designed to create positive motivation (Hackmann and Wageman, 2005). However, organisations must ensure that rewards boost extrinsic motivation without totally ignoring intrinsic motivation (Fairbank et al., 2003). Users will be dissatisfied if they do not have extrinsic motivators like money prizes. Fairbank et al. (2003) explained that intrinsic motivation could greatly help elicit and play an important role in the creation of new ideas, but it proves to be less productive in encouraging employees for the submission of ideas as compared to extrinsic motivators. Besides, Isaksen and Ekvall (2010) mentioned that workers could see stopping rewarding money as unfair. One should note that rewards will only motivate behaviour if workers value them. The organisation can offer different prizes in a way that workers enjoy some autonomy in the selection of prizes of their choice being offered by the organisation. Organisational leaders can make a better use of rewards to promote the culture of collective wisdom and idea generation (Ackah et al., 2020).

However, in a recent study Kjeldsen & Jacobsen (2013) have demonstrated that extrinsic motivation alone can sometimes reduce the creativity and problem-solving abilities of an individual besides causing a lack of motivation. Leboeuf (1985)

pointed out that change in perception of employees towards rewards may lead to a change in their motivation and behaviour. Therefore, the appropriate compensation of employees based on their innovative work can create a positive change among them. On the other side, it is claimed that extrinsic rewards are not so much significant if they are awarded without integration with any other form of intrinsic motivation and rewards. The above-mentioned discussions require to further carry forward the impact of rewards on the inspiration and motivation of employees to improve their performance (Lee et al. 2006).

The debate can go on about intrinsic versus extrinsic rewards, and whether one is better than the other. It is possible that within an organisation, employees at different levels can get motivated by different types of rewards systems (Arif & Al-Kuwaiti, 2007). Therefore, if the kinds of rewards available depend on the employee's level, or if the employee gets a choice of rewards, then a higher level of motivation is expected towards the suggestion system and can consequently result in a higher quantity of submission of ideas.

2.2.14 Social Media

Social media which have had a huge effect on inspiration devices, along with YouTube, Facebook, and Twitter, may also have affected the manner healthcare facility supply their offerings (Naeem, 2019). With their low-price equipment, their use by different contributors inside an enterprise would provide competitive benefits. After information technology has gained the health domain, the 2012 record of the Pan American Sanitary Bureau states that technology has helped decision-making

and strengthens local healthcare structures, thus improving the life of the residents (Pan American Fitness Company, 2012).

Based on the Pew Research Center & American Life Venture (2006), healthcare professionals use the Internet on the same fee as net banking systems and weblog readers. In this context, Gagnon and Sabus (2015) explain that healthcare is adjusting quickly to the new information system era.

The platform of social media is considered as a collective way of technological application that supports communication, collaboration and cooperation, making interplay among different groups viable (Gupta et al., 2009; Bélanger & Allport, 2008). Based on these authors, the medium of social media reacts fast to patients, arranges appointments, and facilitates follow-up discussions. Thielst (2011) shows that social media constitute an incredible low-fee opportunity for healthcare agencies to listen to their patients' problems and their households.

Creating centres available through social media in Brazil and other countries in the Americas and Europe still faces some constraints. Also, the healthcare system in each country does not have a clear categorisation of its services through the Internet, mainly due to restrictive problems which include critical infrastructure, criminal normalisation, tradition, and values (TIC Saúde, 2015).

In its experiment, the mobile technology was used to help the community access quality healthcare. The experiment adopted organisational innovation, and the consequences confirmed two of the assumptions and rejected a third. The first premise focused on the characteristics of the innovation: organisation undertake social media once they understand that the media offers them benefits in their

relationships with individuals, providing the clients ease in acquiring data and sharing knowledge. The second one confirmed the speculation that corporations in the pattern adopt social media according to their own characteristics. Small corporations have an easier flow and have a faster decision-making capability. In addition, their owners adopt social media in their communications with individuals and friends. The third hypothesis, which was rejected but can be useful in our research study, focuses on the impact of the organisational environment to use social media in its operations, which may be defined by the fact that the main motive of patients using social media is to look for information and find better recommendations.

Social media has become so popular that it has been capable of replacing traditional means of communication. This transformation in communication has facilitated the process of searching for health information, sharing the opinions of leaders in the field and promoting types, functions and importance of these leaders. Social media has allowed the leaders in the health field to control the content of their posts as well as the messages they intend to send to their patients. Hence, these followers have been able to make their own decisions on health issues without depending only on their doctors' recommendations because they trust the opinion leaders they follow on social media (Mohamad and Salleh, 2019). In these situations, it is important to understand how social media can affect the suggestion system and bring about a number of improvements, particularly through the creation of health messages posted on social media and strengthening the bond with their followers.

Social media operate on an Internet platform that permits a user to create his own content and share it with others online. It offers any user space to build their own piece of written information, to post pictures and videos and share them with other users online. (Kaplan & Haenlein, 2010). This Web 2.0 platform allows individuals to share ideas, data, personal messages and other online activities. (Cann et al., 2011; White, 2012) thoroughly (Osatuyi, 2012). Nowadays, the medium of social media is also used by people to enhance their connectivity and online presence (Smith 2009), although and it has shown a great potential as an information-sharing platform (Osatuyi, 2013) which has completely transformed traditional media (Li et al., 2015). Nonetheless, the features of the network and the environment in which social media operate are greatly influential (Shang et al., 2016). Different studies have been conducted to investigate the effectiveness of social media tools; therefore, adding the role of social media to the success factors will make a difference within the suggestion system.

With its easy access, individuals have even preferred the use of social media to get health-related information and updates. Different groups have used it in different ways: young individuals use social networking sites to find information related to health (Thackeray et al., 2013). Moreover, Wu and Raghupathi (2012) confirmed that effective public health has much depended on access to information and communication technology. In addition, the users of social media are capable of producing health content material (Fergie et al., 2016). They work on developing their knowledge of treatment and analysis process, which will help them to live a healthful lifestyle (DeChoudhury et al., 2014).

2.2.15 Social Networking

Social networking plays an important role in the success of any knowledge management process that involves innovation and creative inputs (Ohly et al., 2010). People's support plays a positive role to enhance employee's innovation and creative efforts (Majdar, 2005). In a recent study, has shown that employees who are part of a social network produce innovative suggestions (Obstfield, 2012). A social network includes individuals who have built a kind of relationship (Ohly et al., 2010). Networks are organisations that encourage the interaction of "institutional actors" (e.g., firms, universities, hospitals, government bodies) to pursue the same goals (Ceglie & Dini, 1999). Informal and formal social interactions can produce similar benefits (Griffith-Hemans & Grover, 2006). Lasrado et al. (2017), along with other researchers, have underscored the role of effective communication for the effective working of an organisation working in the healthcare system, for example, they have explained that limited use technology can significantly compromise the safety of patients. (Stelson, 2017) used the word Cross-Functional Abilities rather than expertise for a continuous improving project in Healthcare.

Bhardwaj et al. (2005) argued that through informal networks of product developers, individuals have achieved milestones through significant New Product Development (NPD) activities even before the organisation make any concrete commitment related to the provision of resources and timeframe. With the new technology driving the world today, these social networks exist in the virtual space. Web 2.0 offer a platform of social networking to those communities, who started with Friendster and

continue their drive towards new systems like Facebook and Myspace (Bothos et al., 2012).

As discovered by Borgatti and Hagin (2011), the latest trends towards the use of social networks reflect that the business mindset is now shifting from individualism to more systematic and realistic methodologies. There is an excellent relation in organisations between social networks and the creativity stories, which are shared on their different platforms (Ahuja et al., 2012). The effect of social networks on organisational behaviour is strong. In an organisation, individual workers' build their own social networks and shape them up based on their contexts (Vashdi et al., 2013).

The following are some of the underlying assumptions when discussing social networks to facilitate innovation (Kilduff and Karckhardt, 2008) have noted some of the underlying assumptions when discussing social networks:

• Relationships among actors are crucial to the success of a social network.

• The presence of social integration indicates that all participants of the system are interrelated with each other instead of independent working, communicates a strong statement about the impact of teams and colleagues

• The social benefit of network connections focusing on the relational ties between actors ensures the smooth flow of both material and non-material resources.

• The structure of social life aligned with the network can have both negative and positive impact of the organisational performance.

Kijkuit and Van Den Ende (2010) argued that different types of social networks can be helpful in reducing uncertainties and ambiguities due to better sense-making. By this system, information can be gathered about ideas following the decision-making criteria. Small modifications of the evaluation criteria usually result in a more refined form of the suggestion. The researchers also argue that those systems of networks, including the management people and depend upon various modes of communication, can better facilitate the inputs and outputs (Khan et al., 2020). Generally, social networks with members from different disciplines can improve the creativity and overall quality of innovation in an organisation (Burt et al., 2013; Smith and Lewis, 2011). It is demonstrated that different sort of ideas can be originated from a multi-disciplinary system with heterogeneous elements but also involves the decision-making elements within the management system (Kijkuit and Van Den Ende, 2010). It not only produces an integrated network with a shared goal but also develops a stronger bond within the management itself. Such a network sets the environment for the merging of ideas until they reach their final form conforming to the organisation requirements. The authors further added that in case of additional bonding between the members of decision-making bodies, a cohesive kind of network is required in which the members must have prior knowledge of the system dynamics.

The researchers argue that, once the organisation has identified an initial opportunity or idea, it is the social interaction of this idea that determines how this idea can develop and goes under evaluation. Organisations with suggestion schemes can provide chat rooms or blog facilities on the IT-based systems to promote social networking among employees. They can also facilitate the

organisation of social events around themes to solicit responses on a specific aspect.

2.2.16 Supervisory Support

Workplace environment and management practices play an important role to encourage creativity among workers that further enhances the effectiveness and efficiency of organisations (Mburu, 2020). The main goal is to link this literature to the way the support of supervisors or leaders can encourage workers to increase the use of suggestion systems more frequently. However, management's role is paramount ensuring the success of the suggestion system (Delbecq and Mills 1995). Identifying and implementing creativity is one of the various challenges managers face today (Ireland et al., 2002). With mere verbal encouragement, management can significantly enhance employee participation (Ford, 2000). Besides, having an evaluation committee provides employees with the comfort of a fair evaluation (Fairbank et al., 2003). The supervisor's influence is also vital in the success and failure of suggestion systems (Amabile, 1997). Scott and Bruce (1994) discussed the importance of supervisory support for innovative behaviour at work; they focused on its influence on the work climate that supports or hinders innovativeness. Baer et al. (2003), also argue that direct expectations by the supervisors' expectations have a high impact on their subordinates' performance in giving in their suggestions. The full support of the institution's management and leaders is essential throughout the implementation process of the suggestion system (Lasrado et al., 2017).

Over thirty years, Professor Teresa M. Amabile, of Harvard Business School, published her research study on creativity and innovation. She observed that the workplace environment plays a vital role in creativity. Her work clearly shows the supervisor's importance and workgroup support in worker creativity (Amabile, 1997, and 2005). Many other researchers also identified the effect of the organisational climate on innovation, with the supervisors as key players (Siegel and Kaemmerer, 1987; Dickson et al., 2001). Creating a suitable work environment encourages and influences employees to participate in the suggestion system. Lack of supervisory support could negatively affect their participation and innovation (Lasrado et al., 2017).

Meanwhile, Cherry Hudson (2010) highlighted the role of management support, in which the author explained that suggestion programs could exist without the support of management. However, it is not possible for them to survive and grow. Ultimately, the management should understand that creating a conducive environment is vital to encourage and motivate workers in the use of these systems (Kozlowski, 2018). Therefore, managers can have a positive impact on their subordinates in different ways. For example, they can remind them frequently, in group meetings, of the importance of generating creative ideas and recognise the employees who have submitted such ideas (Miao and Cao, 2019). Building good relationships with workers in the organisation can also help improve the rapport between supervisors and subordinates. Kozlowski (2018) is of the opinion that a positive relationship between manager and worker can increase the innovative behaviour, whereas any negativity in this regard can contribute to the weakening of such systems. Kozlowski (2018) recommended that managers must play their role in removing hurdles and

encourage their workers to participate in these systems. Supervisors can control many hindrances because they can become the basic filter for ideas and can help the committee to decide whether to accept or reject a suggestion.

It is observed that managers and supervisors can increase such systems' productivity by involving their workers and encouraging them for the submission of suggestions (Baer et al., 2003). In many Japanese systems, employees enjoy the sense of belonging to the organisation; looking forward to the same successful future; they all display a strong commitment. As a result, they feel comfortable and voluntarily contribute to the exchange of new and creative ideas (Ackah et al., 2020). The involvement of the supervisor is essential, but as Marin-Garcia et al. (2011) pointed out, being always under scrutiny could lead to conservative behaviour and the fear of producing "risky out of the box ideas. Having the support of superiors is important, but too much hand-holding could be counter-productive".

2.2.17 Training

Researchers have identified training as an essential tool to ensure the success of the suggestion system in an organisation (Baird et al., 2011). Training is essential since it provides employees with the skills needed to participate in suggestion systems effectively (Lasrado et al., 2017).

Training can be beneficial, as it can help workers to understand the decision-making process of the organisation (Held et al, 2019). In this regard, their skill level and knowledge base can be improved by offering them the required set of training. (Chin et al., 2002). The scope of training is quite broad. Analysts have identified two main types of training. The first one encompasses the suggestion support system and its

processes. In contrast, the second one is the training of innovative and creative problem-solving. Arif and Al-Kuwaiti (2007) discovered the significance of training for the success of a suggestion system. Robinson and Schroeder (2003) described the training as an important contributing parameter for the successful implementation of a suggestion support system. They have affirmed that organisations need an effective training process related to all the aspects and boundaries of the suggestion system.

Interface training linked to the suggestion system can be IT-based or paper-based. Each employee submitting the suggestion must enter detailed information in each field of a form; the employee will receive training on the kind of information and the level of details required. Once entered, the suggestion goes to a suggestion system administrator who chooses an appropriate evaluator. This trained expert is then able to decide if the idea is good for implementation. The training process depends upon the established criteria that mainly focuses on evaluator's objectivity. These trained evaluators must send their detailed, non-judgemental and appropriately phrased feedback to the employee (Hultgren, 2008). Therefore, the training of employees, suggestion system administrators and evaluators are considered a crucial element to ensure the implementation of these systems.

The second type of training aims to help employees become innovative and able to suggest new ideas. Researchers have used different training techniques to help enhance the worker's creativity and his attitude towards it (Puccio and Gabra, 2010). However, the cost and time of the training programs must be kept in mind before adding them as a part of any system.

Both individuals and groups of employees making suggestions can significantly benefit from training (Carmeli and Paulus, 2015). However, it has been hard for researchers to tell what degree this training can overcome the loss of production resulting from face-to-face brainstorming groups. Similarly, it is quite challenging to identify the impact of training on the success and effectiveness of their suggestions. In an experimental type of research, Carmeli and Paulus (2015) observed that found that different kind of training had a positive impact on the successful implementation of the proposed and suggested ideas.

2.2.18 Trust

Janssen and Gao (2015) indicated that trust in leadership and employee empowerment to generate innovative ideas are closely related. Mutual trust among team members help them in the acceptance of each other weaknesses and encourage them to take more risks for system improvement (Colquitt et al., 2013).

Janssen and Gao (2015) argued that workers having more trust in their leaders feel comfortable and secure in the execution of their duties. They get a feeling that in case of any difficulty, their leader will come to their rescue, and therefore, they feel more enthusiastic in sharing their ideas and suggestions without any fear of workplace conflicts and negative responses of the others. On the other hand, if the employees feel insecure and face lack of trust on their immediate managers/ supervisors, they hesitate in sharing new idea due to the fear of various workplace issues and concerns (Brauner et al., 2019). Therefore, they choose not to discuss any topic related to the workplace.

When employees trust their management and the organisational processes, they feel comfortable that their leaders will respond to their concerns positively. This situation increases their willingness to show their suggestions and proposals. Conversely, in the absence of organisational trust, the employees' willingness to face the consequences of any initiative is reduced and, in these situations, they will not take the risk of raising their concerns and solving their problems. Thus, employee perceptions of the trust in their leader make them comfortable to voice their concerns.

2.3 Suggestion Systems Improvement Models

Van de Vrande et al. (2009) developed a creativity transformational model to identify best practices to transfer ideas into particle ideas. Researchers found a middle stage that helped introduce ideas more effectively into the suggestion systems. They called it the heart of the problem due to the ineffective use of suggestion support system. The elements identified in the middle stage are idea responsiveness, system accessibility, and broadness of the scope. Other researchers supported the literature review of all these elements and their importance, and thus, they are good candidates for inclusion into the intended suggestion systems evaluation model.

Frese and Fay (2001) developed a model in which they clarified the role of suggestion systems as idea submission and evaluation. Their model identified factors affecting the process flow. It also described the phase of “submitting” as affected by motives, system responsiveness, and supervisor support. It is similar to the idea -transit phase. The model also stressed the importance of avoiding

suggestion inhibitors. Researchers considered negative organizational barriers that cause workers to avoid submitting a suggestion and having to wait for the response. The study's findings suggest that having ideas is not enough for submitting them, especially for blue-collar workers who do not use much writing in their work. They emphasized that workers needed additional effort to encourage them to submit their ideas. Besides, researchers found that the relationship between submitting ideas and financial rewards was weak. Also, the model identified supervisory support as an essential facilitator for writing suggestions. However, the test interestingly showed that this type of support is not related to the writing and submitting of suggestions. They explained that supervisors might play a more critical role in shaping the quality of a suggestion than in the creative and initiative processes of idea conceptualization or the suggestion form submission process. Baer et al. (2003) did another study reinforce this last finding. However, as discussed above, many researchers emphasized the importance of supervisory support for suggestion systems to work correctly. For example, Amabile (1979) stated that the role of supervisor support could promote creativity provided that the evaluation on behalf of the supervisor should be fair and transparent. In these circumstances, employees face less environmental fear and express their suggestions without undermining their inner creativity. Literature often cites the famous study of creativity by Amabile et al. (2005), which developed a general model about work environment creativity. The discussed model is relevant to the intended suggestion systems usability model, where it identifies elements that influence the creativity linked to supporting suggestion submission. Examples of elements identified are

organizational encouragement, supervisory encouragement, workgroup support and freedom.

Moreover, Fairbank et al. (2003) suggested a theoretical model on suggestion systems based on the expectancy theory. Their model presented ground rules for the management to follow to motivate workers to improve their participation. They recommended the model have some features to boost worker expectancies related to usability; it should provide a simple, transparent electronic suggestion system, and offer a no-rejection policy. The authors also explained that collaboration improves participation where “facilitating collaboration among employees makes the task of participation easy.”

Other researchers like Fairbank et al. (2003) developed a model that encourages the use of information systems based on suggestion systems. In their research, they affirmed that conventional suggestion support systems are more human-based and prone to human errors based on their interests and personal biases. It seems difficult to develop a creative environment in which employees can be motivated for active participation. The authors believe that a simple and interactive suggestion system will encourage workers to share ideas and will encourage a smooth flow of ideas. Easy accessibility and the publishing of successful ideas help improve participation and promote the use of the system.

Miron-Spektor et al. (2018) also presented a paradoxical model related to the ability to link conflicting demands by the employees. They proposed the adoption of different frames which the management uses to increase creativity; they use a different kind of mind templates in order to guide workers about the acceptance of

conflicting suggestions. Through this model, workers use their structures to generate new ideas. When the management adopts this model, it can control and document all possible conflicts. Such a model would work well for themed suggestion systems. Nevertheless, this model may not be suitable for suggestion systems that are looking for entirely innovative “blue-sky” ideas.

Binnewies and Gromer (2012) analyzed all factors that support the different stages of a suggestion system. They found that, on the one hand, the creative workplace environment and better job control promote the concept of new ideas, and on the other hand, supportive colleagues and helpful managers can contribute in the promotion of these ideas. Besides, they noted that co-workers and managers support besides their own initiative generally predicts its successful implementation. They recommended a model for the promotion of suggestion systems. However, the present research suggests that several factors dictate the success of a suggestion system which the model of Binnewies and Gromer (2012) did not consider. Hence, there is a need to develop a more comprehensive model that will assess the success of a suggestion system.

2.4 Technology and Suggestion Systems Success Drivers

Idea Management is a complex cycle with different level of stages. In its first stage, the management recognises the benefits of workers' ideas, spends the time and effort to encourage them, and stimulates their minds to generate creative ideas. The next stage called "idea landing" by van de Vrande et al. (2009). At this phase, the workers use the existing conventional systems to submit their ideas. The third stage is when the management evaluates the ideas, and the organisation accepts them,

it develops an action plan for implementation. The final stage starts when the organisation implements the idea, and the individuals witness it in reality.

A significant shift in idea management systems' implementation process is the use of the state-of-art technology which has moved these systems from the classical and conventional suggestion boxes to sophisticated, high-tech systems and applications. Hence, technology is an essential factor in suggestion systems evaluation; it certainly helps motivate employees' participation. Therefore, suggestion systems are smart-technology systems and applications.

Whenever technology is implemented, it is essential to consider the system's attractiveness and efficiency besides usage and productivity, suggesting system usability (IBM, 2001). Ferre et al. (2005) believe that any system's usability is vital to justify its development costs. Therefore, organisations must adopt measures to enhance developed systems' usability.

The word “usability” was explained by Shackel (1997) in a way that it is more than the utility of anything. Maguire (2001) believes that it is ease of use for various kinds of systems. However, Miller singled out different parameters to evaluate the usability of any system, including its responses and required learning time. However, during the late seventies, the phenomenon of user friendly became more popular, and people in the academic world also started adopting this term.

Usability if often defined in terms of quality and ease of use (Ferre et al., 2005). Moreover, Nielsen defines it in terms of time that how easily and quickly someone learns the new thing, with how much effectiveness one can use it and how much one likes it while using (Nielsen & Loranger, 2006). Other researchers have also

defined useability as its ability to perform specific tasks and functions under specific circumstances. Besides, ease of use and satisfying performance, another dimension is the acceptability of any system from its prospective end-users (Bevan, 1995). In simple terms, usability refers to how easy or difficult the use of the software is, how productive the users can be, and how long the support is provided (Ferre et al., 2005).

Jakob Nielsen (2003), the King of Usability, as described by Internet Magazine, defined usability as one of the characteristics of any system in which user feel convenient to use it with the help of a user-friendly interface. Also, it should be built upon with an easy to operate elements during the designing of system. There are five components, which are considered important in defining the usability of any system.

• Learnability: The ease of completing and using a task for the first time, anyone uses the system.

• Efficiency: The speed at which anyone can finish the task is learned by the user.

• Memorization: How competent can the user be after returning to the design when they have left it for a short period?

• Recoverability: What is the number of errors and their severity, and quickly one recover from them?

• Satisfactory experience: The level of engagement users feel when handling the design?

The International Standard Organization (ISO, 1991) 9241 Part 11 explains usability as the level to which a person uses a product with ease, comfort, effectiveness and the highest level of satisfaction for which it is designed. In a nutshell, it means that usability is a term that is measured in the way of performing certain functions that are associated with the product.

Goldberg et al. (2011) described five characteristics of usability, and she defines them with the help of 5Es:

• Effectiveness: the accuracy at which the user can complete work or reach goals.

• Efficient: the speed at which this the user can complete work.

• Engaging: the level of interaction, engagement and satisfaction at which the user relates to the interface.

• Error tolerant: the number of errors the product prevents and the level at which it is helpful in recovery.

• Easy to learn: the level at which the product provides support for beginners to learn its various stages.

For this research, we will be using the original definition of usability given by Nielson.

As a summary experts have accepted the five attributes of usability as a part of any software system. The first one is learnability; the promptness with which the user can start working on the system. The second is effectiveness; this feature enables the user to achieve productivity. The third is memorization; the software allows the worker to start using it again after a long break without going into the hustle of

learning again from scratch. The fourth characteristic is the low error rate; the program prompts the user to do a smaller number of errors, which can easily be rectified. The final characteristic is satisfaction; the user conducts his work pleasantly.

The present research investigates the drivers that determine the success of suggestion systems, and also considers the technology implementations success factor which is the degree of the system's usability. In this research, the usability definition by Nielsen (2003) is adopted. This definition will guide the research in the inclusion of elements or success drivers in the proposed evaluation model. Guidance will take place to justify that a selected element /success driver has an effect on the system's technical usability.

In this research, different literature in the field of suggestion systems are studied. Researchers are found to identify eighteen critical factors, which play an important role in the success of suggestion support systems. These factors were: usability, scope clarity, incentives, feedback, training, publicity, supervisory support, colleague support, social networking, deadline/goal setting/themed, resources, anonymity, trust, and autonomy, the challenge of problem-solving, social media, equity, and compliance. In the following sub sections, the relationships among suggestion systems success drivers and their technical usability are investigated.

2.4.1 Anonymity

Anonymity is essential to the overall faith in the system. For this reason, refereed journals all over the world promote double-blind reviews for evaluating the papers submitted to the journal. In a suggestion system, an idea is submitted and then

evaluated. After the evaluation is complete, the system provides feedback to the employee. The employee needs to believe that their idea has received fair judgment. Therefore, having an anonymous system at the time of evaluation leads to higher satisfaction towards the suggestion system.

2.4.2 Autonomy

A suggestion system should be a voluntary system. People cannot be forced to be innovative, so instead, the organisation should find a way to encourage them and to give them the autonomy to pursue their ideas and submit suggestions they feel are feasible. Pre-judging can improve the suggestions, but negative feedback at early stages might encourage employees to abandon the idea and the suggestion system altogether.

2.4.3 Clear Scope

In the review of the literature, researchers found that suggestion systems need a clear scope to flourish. Usability can direct attention to both the system and the user and, hence, promoting a clear scope. Such a definition of usability helps design a system that makes fewer errors. In turn, the low error rate will help improve the scope of suggestion systems through which efforts will be directed to giving workers a clear idea regarding the system's scope and avoid giving unnecessary suggestions. Usability also helps the system users enhance their learning that can be further applied for the ideas' timely and qualitative submission. Similarly, clarity of scope helps them understand the system's intended objective and usability encourages the detailed description of what the system is intended for, as this element will be directed to the type of ideas needed and the party submitting them.

Organisations seek different ideas from their employees to improve various aspects of their workers' environment. Topics such as workers' morale and employee competition are examples of issues preoccupying company management. Robinson and Schroeder (2003) are great advocates of micro-level and believe they carry enormous benefits for organisations. Also, a major reason why suggestion systems in Japan have a far better involvement of employees than their counterparts in the USA is that Japanese organisations encourage small ideas and American companies wait for significant radical suggestions (Ackah et al., 2020). Besides, widening the scope to include all workers and visitors (not just the R & D workers) will increase candidates' potential to send suggestions.

2.4.4 Colleagues Support

Another important element of the suggestion system is the support, which the workers receive from their colleagues. Employees can find more confidence in using the system when their colleagues help them, primarily if they have never used it before. These colleagues guide them about the using of these systems, and by doing this, the user's chances of committing errors are minimized. During a competition between workers for the quality submission of ideas, it is observed that the efficiency of the system is also enhanced as a by-product. In the process, workers will try to master using the system to send more creative ideas. This factor's selection is further justified by aligning with the different models studied in the previous section, like the one proposed by Van de Vrande et al. (2009).

2.4.5 Compliance

Employees of an organisation can benefit from a code of conduct, mainly when it is part of the standard contract. This principle will help employees to focus their thoughts and suggest ideas that abide by organisational operations. Some organisations announce their code of conduct in billboard, social media and email for seeking ideas in specific areas. This kind of compliance setting results in higher efficiency for the organisation and can help to avoid any collision.

2.4.6 Ease of Use

Authors discussed in the literature review on suggestion system as a means to improve participation. Therefore, it has great potential for inclusion in the theoretical model. Based on Nilson's definition, the first step is to see if the element can add value to usability. Users can learn faster from a secure system, can remember it easily and can avoid errors. The second step is to see if the guidelines and techniques on usability can expand on the element. As shown in the literature review, some researchers like van de Vrande et al. (2009), identified the significance of productive contributions in terms of usage. This study will be using the guidelines of usability to broaden the usability of the system by adding the following factors; Ease of access, clarity, universal acceptance, user-friendly interface, and change flexibility. Ease of access means the convenience to which the system is available for potential users. For example, sending a suggestion should be available to all employees to receive an encouraging response from the participants. If the system relies on the conventional way of submitting forms to collect the suggestions, the forms must be easily available to all essential locations instead of only one place.

Also, the receiving system designed to receive suggestions must be accessible as well; as in the case of suggestion boxes, they should be distributed in different places. Furthermore, if the study uses an IT system, no workers should need to use a password, and different PC's can be made available to people for their inputs and suggestions. Similarly, the term accessibility also encompasses the opportunities of frequent meetings between different members of the suggestion support committees with their respective coordinators. In this regard, the members can make their contact details available to all people for easy access. The committee should also include a representative from each group to help facilitate the participation of blue-collar workers for easy accessibility and help avoid communications barriers resulting from job rank.

The clear sub-elements guidelines related to the availability of the instructions/ members can be shown on all kind of available forms, organizational website or noticeable places at different sites. The basic objectives of these guidelines are to minimize any sort of anxiety among people in raising different proposals, especially, if they do it for the first time as a part-time visitor or a permanent company worker. In the presence of guidelines, it is easier for people to submit their suggestions, and subsequently the processing time required to submit the independent suggestions can also be reduced. The guidelines can be designed to highlight the goal of the system, the purpose of suggestion collection, necessary contact information and the procedural justice to administer the rewards and incentives.

Universal acceptance means that the management should take into consideration the difference among workers that might prevent some groups from participating.

For several companies in the healthcare sector, employees are often spread over multiple locations and might or might not have access to computers. They might be from different linguistic backgrounds. If the management does not pay attention to this issue, it will lose many ideas from those who are better suited to raise small and specific ideas:

If the interface in the suggestion system, on paper or a computer screen, is not appropriately used, it discourages many workers from giving ideas. Employees may face different problems when using an interface due to lack of understanding, usage of difficult words and the kind of space provided for suggestion writing. In case of overloaded information either on the form or on the user interface, users face difficulty and feel discouraged to give their suggestions, because they consider it a laborious task needing a lot of efforts to fill these forms. Most users complain that they feel overwhelmed with plenty of information provided on the user interface (Giraldo et al., 2007). It is observed that the users feel encouraged to submit their suggestions if the user interface comprises of less information and limited to maximum one page in order to speed up the submission process. Besides, the forms must be designed in the common language being used in respective areas to make them more understandable for the participants without any dependency on other people for translations. Similarly, serial numbers tagged on every form can help in easy tracking of submitted suggestions besides improving the feedback mechanism.

A system that provides different options to complete any task besides a wide range of alternatives is referred to as a flexible system. Therefore, a suggestion system

can also be flexible by offering both software and paper-based user interface systems to submit ideas and suggestions. Also, users can find different ways of submitting ideas such as mail and boxes. Flexibility lies in offering various kinds of gifts, in order to invite more people to participate in the system.

2.4. 7 Equity

Equity is essential to the overall fairness in the system. For this reason, the employment equity law has had a significant effect on the minority candidates who apply ideas and have the right to appeal if the employee treated unfairly. In a suggestion system, an idea is submitted and then evaluated. After the evaluation is complete, the system provides feedback to the employee. The employee needs to believe that their idea has received fair judgment. Therefore, having an equity system at the time of evaluation leads to higher satisfaction towards the suggestion system.

2.4.8 Feedback

Another important factor in enhancing the usability of the suggestion system model is the feedback. Organisations are usually concerned about the efficiency of the feedback process. Without proper feedback, most workers will feel neglected and, thus, their satisfaction will decrease in the usability process. Almost all the available models emphasize on the significance of feedback because it helps workers to identify their mistakes and subsequently play an important role in improving the quality of submitted ideas. Besides, the efficiency of the entire suggestion system also enhances due to frequent interaction between supervisor and team members in relation to the provision of timely feedback. They get a comprehensive

understanding of the working of the system. By applying usability guidelines, an organisation can direct feedback to the way it is forwarded in, its speed, and its details. While giving rewards, the feedback system can be made flexible, and the incentives can be announced verbally, certificate or email. Various studies indicate that the time needed to upload any suggestion on the system not only increases the frustration but also reduces the flow of traffic (Nielsen, 2003). This finding can be used to help the suggestion system coordinator, and committee provides fast feedback. And lastly, the feedback must contain all the salient elements about the suggestions so that the worker gets a complete idea about the usability of their ideas, whether they are accepted or rejected, with an explanation if needed, and how they can receive the reward or the award.

2.4.9 Goal Setting

Employees of an organisation can benefit from deadlines and specific goals, particularly when the management is seeking suggestions. These deadlines and goals will help employees to focus their thoughts and suggest ideas that have a higher impact on organisational operations. Some organisations run themed suggestion schemes seeking ideas in specific areas. This kind of goal setting results in higher efficiency for the organisation as issues that are of more importance to the organisation attract ideas.

2.4.10 Problem Solving

As some employees will suggest ideas just as a challenge to solve a problem they are facing, the satisfaction could become a huge factor in improving the employees'

motivation levels and leading to their participation. This challenge could be an active driving force for the eventual success of a suggestion system.

2.4.11 Publicity

In a suggestion system, publicity is related to several elements of the system. The first element is marketing the system itself, telling people that it exists and how important it is for employees to participate in the suggestion system. It is also essential to publicize some successful suggestions to motivate employees and encourage them to participate in the suggestion scheme. Publicity will result in better learnability and memorability of the system and its importance to the organization. Publicity of some successful suggestions will also result in better satisfaction towards the system.

2.4.12 Resources

An organisation that can have appropriate levels of resources devoted to the operations of a suggestion system can have a remarkable future. It shows its employees the commitment of the management, especially when it runs their ideas into their system and provide workers with efficient feedback. The system will also lead to the quicker turn-around of the suggestions and faster implementation. This leads to a better level of satisfaction towards the suggestion system. Committing appropriate levels of resources towards the training of employees will also lead to better learn-ability and better memorability about the system and how to submit good and practical suggestions.

2.4.13 Rewards

The reward is a factor that focuses on incentives, such as prizes and encourages workers to submit ideas through designated suggestion systems. In this regard, user satisfaction is considered as a critical element, which can be further enhanced with the help of equitable reward and incentive system. Because the timely announcement of rewards promotes their learning desires and encourage them to participate in training programs related to suggestions systems. Upon completion, it is expected that their participation is ensured in the submitting idea process. Also, flexibility is another key element that focuses on the attractiveness of the kind of rewards given to different employees. These procedures can be helpful to increase the number of intended participants.

2.4.14 Social Media

Social Media could be helpful for employees and patients. They can use the platform to discuss ideas and maybe bounce them off each other. The social media could be through different social media platforms, which not only bring together employees from different departments but also improve the quality of suggestions since some suggestions involve multiple departments and disciplines. These platforms will provide an opportunity for a sounding board. They will result in better efficiency as someone from a different perspective would have analysed the suggestions.

2.4.15 Social Networking

Social networking promoted by the organisation could be helpful for employees. They can use these events to discuss ideas and maybe bounce them off each other.

The social networking could be organised through after-work events or using online forums like Twitter, Facebook, Instagram, and etc. These social networking events can also bring together employees from different departments and can improve the quality of suggestions since some suggestions involve multiple departments and disciplines. These events will provide an opportunity for a sounding board. They will result in better efficiency as someone from a different perspective would have analysed the suggestions. Possible consequences will also be better error recovery and getting it right the first time.

2.4.16 Supervisory Support

In the literature review, it is identified that supervisory support is considered as an important success element. It adds value to usability because managers have a direct impact on their employees in the workplaces, especially those organizations which operate on hierarchical structures. They can ask their employees for the frequent submission of creative and innovative suggestions, and the organizational structure can be used for effective monitoring and evaluation. Moreover, different tiers of management can work to enhance the effectiveness of the system by providing essential training to workers on the use of systems. Also, supervisors can play an important role to enhance workers' satisfaction by sharing their experiences in proposals submission as examples, as well as given them encouragement and timely feedback for further boost their participation.

2.4.17 Training

The component of training is also crucial in the success of suggestion systems. Organisations who have suggestion systems conduct training programmes for their

employees. These training programmes could deal with the overall scope of the system, or it could deal with the use of the actual IT or paper forms used to submit and evaluate the submitted suggestions. Proper training on the scope and remit of the system and how to use it will result in better learn-ability. It will also result in employees making fewer errors at the time of submitting the suggestions. It will lead to better memorability of the system and also result in the improvement in the efficiency of the suggestion submission process.

2.4.18 Trust

When employees trust the organisation and feel that the organisation wants them to solicit suggestions, they will willingly provide suggestions. They also need to trust that the suggestion will not only benefit the organisation but will benefit them personally as well. They also should believe that the organisation values their ideas, and when a better system is proposed, they will still have a job and will not be laid-off after the management has implemented the suggestion. Therefore, reinforcement from the top management about how important the system is, and how much the organisation values employee suggestions is essential. This trust in the management will result in better quality, and more efficient suggestions lead to higher satisfaction with the system.

Figure 2.1 illustrates the relationship between suggestion system drivers and usability. The relationships demonstrated in this table will be used as a basic framework to develop an assessment model.

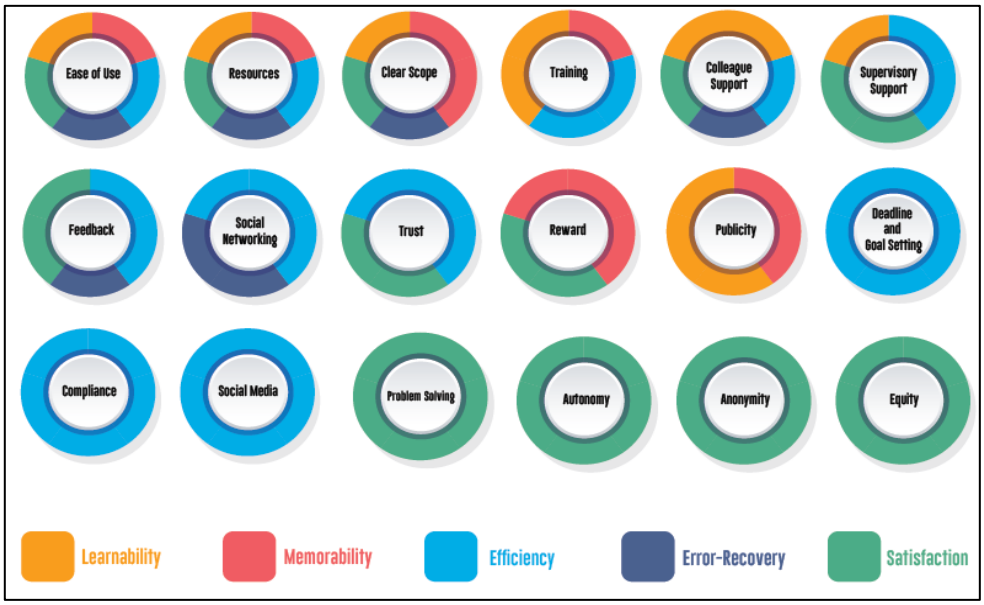

Figure 2.1 Impact of Success Drivers on Technology Usability.

2.5 Assessment Framework Development Methodology

Figure 2.2 illustrates this research applied methodology. The first step is to identify suggestion systems success factors from the reviewed literature and then check their contribution to the selected technology evaluation parameter, the usability. In this research, and as shown earlier, eighteen success factors are identified.

The next step is to link, if possible, the selected suggestion system's success factors with the chosen technology evaluation parameter, the usability definition, and include those that contribute to the definition's five components defined earlier in this chapter. In other words, a success factor is included if it contributes to at least one usability five-component; otherwise, it is excluded. After that, the researcher designed a 5-point Likert scale questionnaire using the relevant success factors (i.e., those that contribute to at least one component of the selected usability definition, Nilsen's definition.

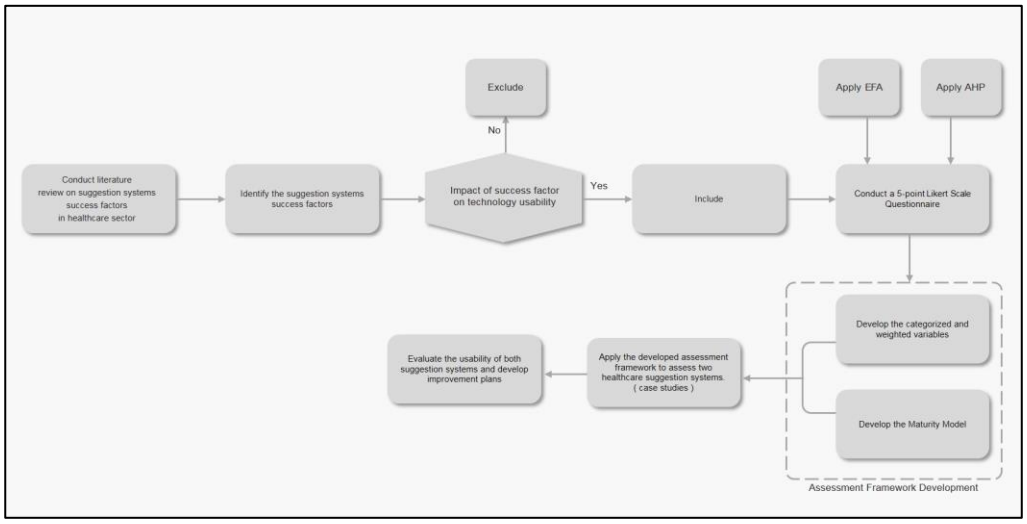

Figure 2.2 Assessment Framework Development Methodology.

Both Exploratory Factor Analysis (EFA) and Analytical Hierarchy Process (AHP) were applied to the collected questionnaire responses in addition to a high level general descriptive analysis. A brainstorming session with experts in the healthcare facilities on the researcher's self-developed initial maturity models resulted in the refined maturity model. The resulted labelled latent factors and the prioritised variables within them, and the refined maturity model represent the proposed assessment framework in this research. Finally, the developed assessment framework is applied to evaluate two Saudi healthcare facilities suggestion systems' usability. In addition, the developed maturity model, as a rubric, allows to evaluate the maturity levels and recommend the improvement plans accordingly.

In conclusion, this chapter presents a literature review based on which the study identifies eighteen suggestion systems success factors, and their usability has been defined using Nielson's definition of usability. The following chapter elaborates on the research methodology being followed in the present thesis.

Chapter 3 : Research Methodology

3.1 Introduction

This research is based on the study conducted by Saunders et al. (2007) in which they developed the research onion illustrating the required research development steps. The research onion classifies the research into the following six phases or stages named as: philosophical theories, study approaches, research strategies, optional choices, longitudinal/cross-sectional, and research techniques. Furthermore, it allows the researcher to pursue different options within each stage to achieve the research objectives (Fig. 3.1).

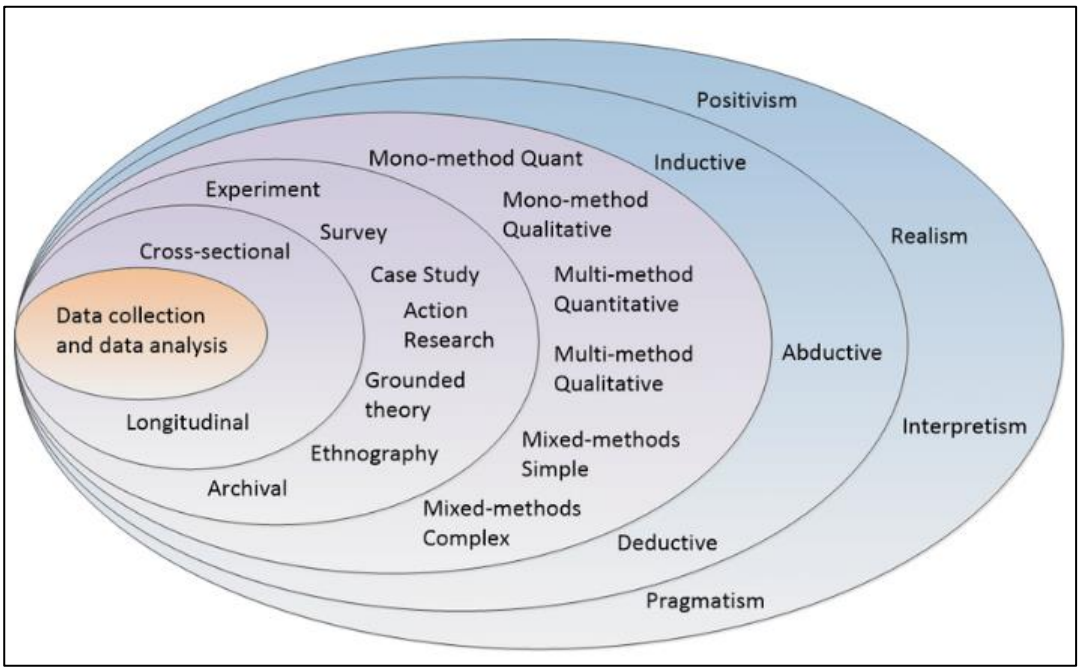

Figure 3.1 Research Onion. (Saunders et al., 2012)**.**

3.2 Research Philosophy

The research philosophy is defined as the set of beliefs concerning the nature of the investigated reality (Bryman, 2012). These beliefs identify the subsequent research stages, namely, research strategy and the selected methods (Flick, 2011). These philosophies may differ from each other depending upon the goals and objectives and the ways of achieving them (Goddard & Melville, 2004). The choice of selecting a research methodology lies with the kind of available knowledge (May 2011). To conceive the research philosophy, two approaches must be kept in mind: ontology and epistemology. The assumptions of both approaches are related to the available knowledge and realistic constraints in the field of study; as in present research, it focuses on the usability of suggestion systems in the healthcare sector.

The branch of Ontology relates to the element of realistic conditions and parameters (Saunders et al., 2007). It depends upon the researcher's assessment and how various assumptions are taken into consideration. Either objectivism or subjectivism can classify ontology. On the other hand, objectivism is related to the existence of social elements. It is observed that subjectivism depends more on social actors' perceptions, who ultimately create this social phenomenon (Saunders et al., 2007). In the present research, the objective is to explore suggestion system managers and participants in Saudi healthcare facilities; therefore, one can highly expect people's influence. Hence, this research assumes a subjectivist status.

Epistemology is a Greek word for knowledge. Epistemology is the philosophy of how we find out about the topic under investigation. There are two contrasting views, in this regard; one is social constructivism, and the other is positivism (Saunders et al.,

2007). The concept of positivism revolves around the theme that the properties and features in the world are measured objectively rather than subjectively. Therefore, methods, tools, and techniques may be used for different research sorts rather than relying on inner reflection intuitions. (Easterby-Smith et al., 2008).

On the other hand, the believers of constructivism believe that instead of objective measurement, the reality of any situation must be gauged with the help of subjective factors. (Easterby-Smith et al., 2008). Hence, the paradigm of constructivism is not based on external factors but revolves around deep human participation. In this research, suggestion systems' success factors are influenced heavily by human participation. Many of them are related to behaviours and psychological characteristics of the organisational people, where these systems are implemented.

Furthermore, management and leadership participation and commitment also affect the processing of suggestion support systems. On the other hand, the people's participation and the organisational environment also impact the suggestion system's usability aspect. Therefore, this research assumes a Social Constructivism status.

3.3 Research Approach

Researchers have been following three approaches in carrying out research: deductive, inductive, and abductive. In the first approach, the hypothesis is developed based on existing theory, while the deductive method is used to make it more specific (Silverman, 2013). In this regard, the theoretical framework is established, followed by testing the relevant knowledge base (Kothari, 2004). It is a "Top-Down" method. The second approach is called Inductive Approach, in which

the process moves from specificity to generality (Bryman, 2011). In other words, data collection and observations are gathered before the investigation and identification of data patterns (Beiske, 2007). It is called a "Bottom-Up" approach. In this research, we pursued the deductive method. This research starts with a usability-based model and is then further narrowed down to a specific hypothesis through collected survey data. The third approach, the abductive approach, is similar to deductive and inductive approaches as it is applied to make logical inferences and construct theories. However, it addresses weaknesses associated with both deductive and inductive approaches mentioned earlier. An abductive approach may lead to the best prediction of the truth and perhaps even a new theory based on the collected observations. In other words, it is a process through which new ideas or hypothesis come to existence based on observation. Furthermore, a researcher may encounter an empirical phenomenon that the existing range of theories cannot explain. The researcher then seeks to choose the best answer from many alternatives to explain the facts identified.

This research starts with a popular and widely accepted technology evaluation parameter definition and then further narrowed down to an evaluation framework based on the literature reviewed findings and synthesis, applied EFA and AHP to the 5-point Likert scale questionnaire responses. After that, facts were collected through the conducted interviews in two Saudi healthcare facilities. The facts obtained were analysed to evaluate each healthcare facility's suggestion system's usability level using the initially developed assessment framework. Therefore, the applied research methodology in this thesis is an abductive approach.

3.4 Research Process

Researchers have divided scientific research investigations into two parts, the conceptual model in which the research base and the questions are tested. At the same time, the other is known as research design in which the actual planning to carry out the whole research is decided that involves the selection of samples, data collection and analysis (Sekaran, 2003). There were three major phases in the present research.

The first phase is started with clearly defined research objectives, aim, and questions after an initial literature review. In this regard, the usability concept features, which are also applied in product development and IT, being utilised as an interesting concept to apply to the management system. A usable management system was as important as a functional IT system. The second concept that was of interest to the researcher was the suggestion system. In Saudi Arabia, this concept is gaining popularity as a technique to assess the effectiveness and explore the identity of potential opportunities for future improvements.

After that, the researcher combined the concepts of usability and suggestion systems and set the aim of developing a usability-based assessment framework for suggestion systems in the Saudi healthcare sector. The literature review identified a list of success factors or success drivers, which play a part in the success of suggestion support systems. Studies in the review of literature also looked at usability assessment models. They identified one of the usability assessment models for further application of this research. After that, the usability assessment model was connected to the suggestion systems success factors.

The second phase was the data collection one. This phase is divided into four significant steps.

Step 1

The first data collection started with the 5-point Likert questionnaire. During this process, the survey questionnaire was sent to the employees of six Saudi healthcare facilities who use suggestion system through Google forms. The responses were analysed using EFA in order to cluster the 18 success factors into a smaller number of latent factors. SPSS software was used in this part of the analysis.

Step 2

Two suggestion systems practitioners were invited to attend a virtual brainstorming session to review the outcomes of the EFA and agree on the representative number of latent factors and name them. In addition to this task, experts helped in building the pair-wise comparison metrics within and among the latent factors in preparation for the Analytical Hierarchy Process (AHP).

Step 3

In the third step, the case study evaluation model was analysed and reviewed by two suggestion systems practitioners in order to review it and refine it before conducting the case studies in two Saudi Healthcare facilities.

Step 4

Through the multiple case study strategy, detailed analysis and interviews with employees were carried on collecting data from two different Saudi healthcare facilities, the researcher was able to interview several participants from different positions in each healthcare facility. Details are illustrated in Chapters 5 and 6, respectively. Based on the final model evaluation, the researcher presented specific opportunities for improvement in each healthcare facility.

The third and last phase of the present research discussed the findings followed up by the conclusions. Finally, the recommendations are given for future researchers in Chapter 8. Figure 3.2 illustrates a high-level overview of how the research was carried on throughout the thesis journey.

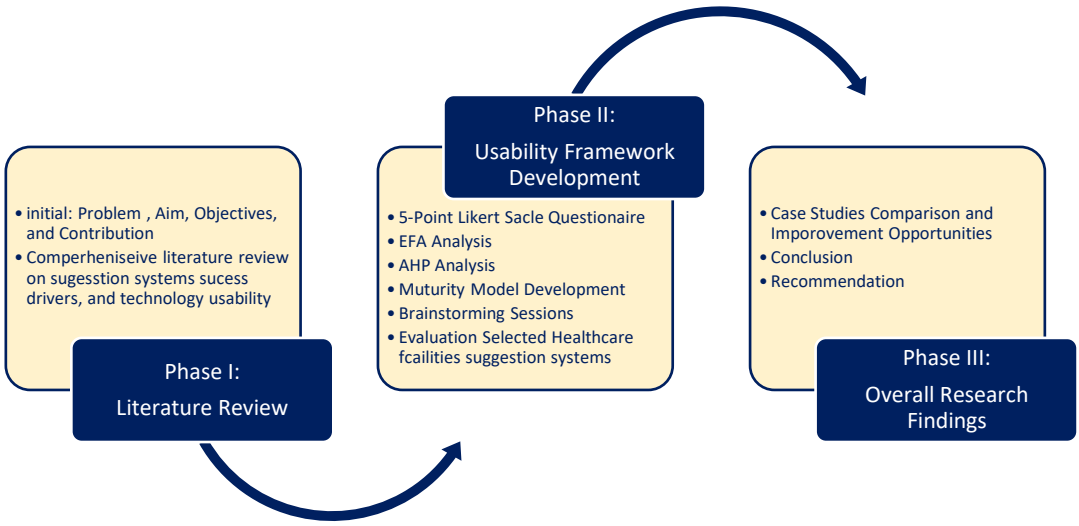

Figure 3.2 The Research Process.

3.5 Research Choices

Different researchers make a combination of quantitative and qualitative methods. Teddlie, and Tashakkori (2010) introduced the research design to explain combination methods. Saunders et al. (2009) believe that researchers can choose by selecting from two combinations. The first one is to use the data collection based on any single method followed by its analysis (Mono Method). The second focuses on using multiple data collection methods followed by detailed analysis to answer the formulated research questions (Multiple Method).

The Multiple Methods approaches refers to the use of both qualitative and quantitative methods, and it is divided into two Categories, Mixed-Methods and Multi-Methods as Fig. 3.2 illustrates below.

The first type of Mixed Methods is called Mixed- Method Research. In this type, the researchers use both techniques in a specific sequence but do not combine them. The other one is called Mixed-Model Research, in which both techniques are used in different phases of the research.

On the other hand, in the different two types of the second category, Multi-Methods, the researcher focuses on more than one data collection method and analysis (Collis & Hussey, 2009). If the researchers quantitatively collect the data and carry out the quantitative analysis, it is called Multi-Method Quantitative Study.

However, if the researcher chooses to collect qualitative data and analyse it with qualitative techniques, it is known as Multi-Method Qualitative Study (Fig. 3.3).

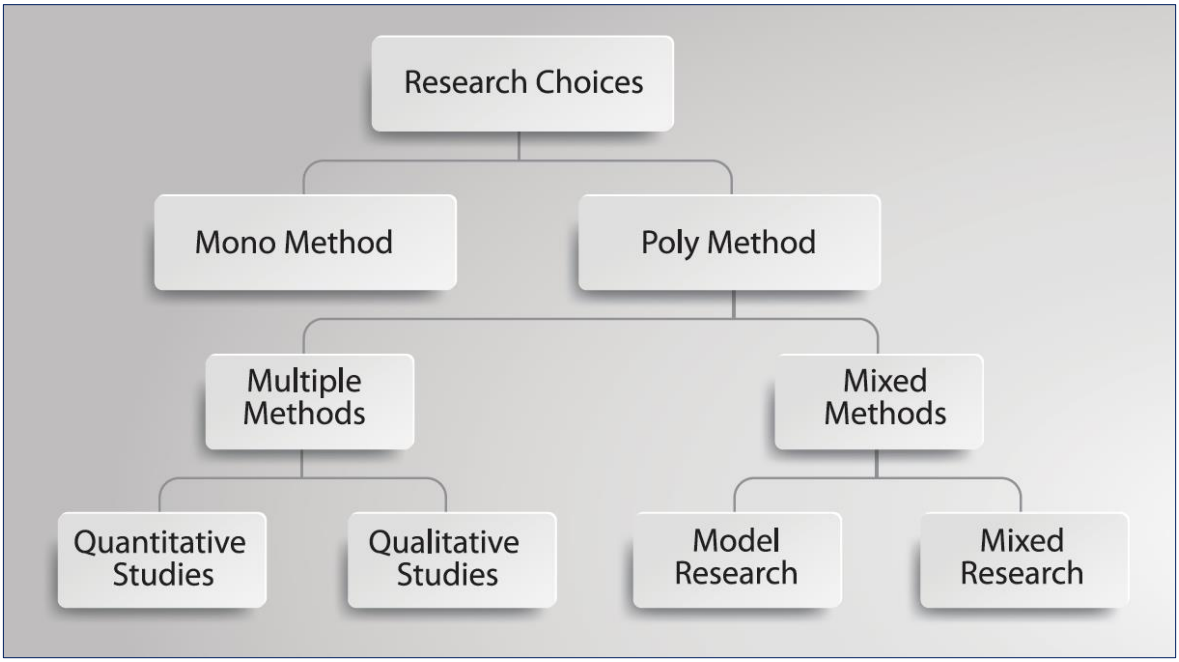

Figure 3.3 Combination Design. (Saunders et al., 2009).

The present research's main objective is to develop an assessment framework to assess the usability of suggestion systems in Saudi healthcare facilities. To do this, the researcher has collected data in four phases. In the first part, data were obtained through the 5-point Likert scale questionnaire to find out the significance of suggestion systems success factors in the healthcare sector. A sample of 138 responses was collected among all the distributed questionnaires before applying an Explanatory Factor Analysis (EFA) on them and coming up with the initial clustering of the significant factors. In the second phase, two suggestion systems practitioners were invited for a virtual brainstorming session to evaluate the EFA results and assist in making the final adjustment. Besides, both experts participated in developing the pair-wise comparison of the agreed-upon clusters, individually and collectively.

In the third step, the two suggestion systems experts were also called for a virtual brainstorming session to evaluate and refine the developed model's maturity levels. In the last phase of the study, the model was further refined with two case studies, as discussed in Chapters 5 and 6.

Therefore, in this research, we used quantitative and qualitative methods to attain the research objectives.

3.5.1 Quantitative Methods

Quantitative data is defined as the one which can be measured or numerically counted (Malhotra & Briks, 2007). It is mainly collected in experiments, then manipulated, and statistically analysed.

Furthermore, it is usually represented numerically and visually using charts and graphs. Several methods can be used for the quantitative collection of data; however, each one of these methods has their pros and cons.

3.5.1.1 Questionnaire Design

In this research, we adopted the quantitative survey questionnaire because it allows us to collect data from all healthcare facility personnel levels. The questionnaire was the foundation upon which feedback on the importance of suggestions systems success factors was defined before applying several statistical analysis techniques.

Practically, there are two types of questionnaires to choose from depending upon how they are administrated, particularly the extent to which the researcher was in

contact with the respondents. The first type is called self-administered questionnaires, while the second type is called interviewer-administered.

In the first type, questionnaires are delivered and received back from participants either electronically (Internet/Intranet-Mediated Questionnaires), via post (Postal Questionnaires), or by hand (Delivery and Collection Questionnaires).

The second type of questionnaire is called interviewer-administered, where the researcher records the participant's feedback based on the conducted interview. In this type, questionnaires can be completed either by using the telephone (telephone questionnaires) or by physical meeting (structured interview questionnaire).

This research study has adopted the Internet/Intranet-Mediated Questionnaires. The Google Form platform was used throughout the questionnaire process from building it to collecting it. This type was very efficient and effective due to the COVID19 period since it eliminated the chances of the physical face-to-face meetings during such pandemic.

3.5.1.2 Measurement and Scaling

The aim of the questionnaire was to get information on the major classes or clusters of the 18 success factors in Saudi healthcare suggestion systems. The questionnaire was based on a 5-point Likert survey. Hair et al. (2011) defined these scales as a measure to gauge the level of agreement or disagreement associated with the statements of the respondents. This type of scale is known as a summated rating scale (Likert-style rating scale), which attempts to measure the participants' opinions and responses. Usually, a seven-point or a five-point scale is issued to

assess the respondent's level of agreement about available questions (Hair et al., 2011). Various mechanisms can be used to present the responses of these statements (Mahon-Haft & Dillman, 2010). The choice of five or seven points allows the respondent to select the option of neutral if they never wanted to pick the weeping option of do not know. Researchers can gauge the respondents' assessment by using these scales and identify key drivers of the literature on the usability of the suggestion systems. Likert rating scale questions are often referred to as quantitative. Which support the quantitative data collection methods that this research adopted.

3.5.1.3 Types of Variables

Questionnaires can be useful in collecting three different types of data variables, opinions, behaviour, and attributes (Mahon-Haft & Dillman, 2010).

The first type, opinion variables, register the way to record the response of participants about something, whether it is true or not (Saunders et al., 2009). In the present research, the questionnaire asked respondents about the degree of each variable or question affects the success of suggestion system in Saudi healthcare facilities. The second type consists of variables related to the behaviour of respondents. It contains data about the individuals' steps or the organisation in the past, present or future. For example, it asks what the organisation is planning for-profit improvement are or how it is has experienced failure and how it will manage certain situations. The third type is known as the attribute variables. It contains data about the different characteristics of the respondents. Mahon-Haft and Dillman (2010) observed that attributes indicate the qualitative features of the respondents

and they can be used to assess the varying behaviours of the different respondents like their age, experience, education, gender and other parameters.

3.5.1.4 Questionnaire Layout and Wording

In a successful questionnaire building process, questions must be simple and easy to understand, and they must be sequenced from general to specific. In this research study, the researcher divided the questionnaire into two parts. The first part consisted of general questions about the respondent's profile, such as job title, age, educational level, and gender. On the other hand, the second section solicited explanations about the importance and motivation of participating in Saudi healthcare suggestion systems.

3.5.1.5 Pilot Study

The objective of conducting a pilot study on the initially designed questionnaire was to make sure the questions are clearly explained from the respondent point of view instead of the researcher point of view.

This phase of the research allowed the researcher to identify and correct problems issues with the initial questionnaire. Chaisson et al. (2006) defined piloting as the term to verify and validate the authenticity of data before it is presented finally to the respondents of the main study. Also, Saunders et al. (2009) observed that pilot testing is a small level study to check the credibility of the questionnaire or any other data collection method. The main objective of this whole exercise if to see the possible problems, which the respondents can face while replying to questions. The importance of the pilot study further enhances in the backdrop of self-study

questionnaires, because in these situations, the surveyor is not present at the time of filling out survey forms to clear any confusion. Because, in the presence of a surveyor, any problem in understanding the theme of questions can be instantly clarified and addressed (Bryman, 2011).

They also suggested that the researcher should check (questions seven) in the questionnaire when conducting pilot studies for self-administered questionnaires. These issues are related to completion time, clarity of instructions and questions, questions difficulty, missed topics, layout, and other further comments).

The researcher tested the questionnaire with the help of a small pilot study in which interviews are conducted from a selected population sample taken from six Saudi healthcare facilities staff and employees.

3.5.1.6 Questionnaire Administration

After the questionnaire was built and initially tested on a small sample of healthcare sector employees, the survey questionnaire was distributed for primary data collection. The researcher adopted a systematic procedure in the questionnaire distribution process. At the beginning of the questionnaire, there was a cover letter that addressed all issues, especially the privacy of the participant to ensure the participant's trust. The questionnaire was sent electronically via Google Form and therefore saved the confidentiality of participants; in addition, the data collection was simple and easy. Taking a cue from Saunders et al. (2009) argument, our approach has given all participants the freedom to complete the questionnaire in their free time (not necessarily during their working hours) and therefore, we helped in reducing the indirect cost associated with the data collection process.

3.5.2 Qualitative Methods

Qualitative data is basically used to collect data in the form of interviews or other techniques to collect non-numerical data.

3.5.2.1 Research Sample

In research, the word population is used to present the entire community of people or things of interest to the researcher (Sekaran, 2003). However, the sampling strategy illustrates the procedures and techniques of selecting appropriate units from a population of interest like Saudi healthcare facilities in order to get the proper insight. Therefore, adopting a well-defined sampling strategy can provide reliable findings. As mentioned earlier, this research adopted a mixed-method approach; therefore, it was essential to consider the different methods in selecting the research sample. Finally, the study sample represented selected Saudi healthcare facilities that had suggestion systems.

3.5.2.2 Self-administered Questionnaire Sample

In the present research, the survey questionnaire was electronically disseminated and as mentioned earlier, contained both general and specific questions. The general questions were to get insights on the participant's demographic profile while the specific ones were used to determine the success factors from each respondent viewpoint. To obtain appropriate data, the researcher targeted all level employees and was able to gather 138 responses in total. At this stage, the suggestion systems success drivers were identified. However, brainstorming sessions with suggestion

systems experts were arranged to understand the appropriate clustering, define weights across and within clusters, and finally, refine the final evaluation model.

3.5.2.3 Brainstorming Sessions

In this research, two major brainstorming sessions with two suggestion systems practitioners were conducted. Both sessions were virtual sessions. The first one that took place after collecting data from questionnaires was to investigate the initial clustering of the EFA exercise and to build the matrices of pair-wise comparison with a purpose to apply the AHP. The second brainstorming session was to review, analyse, and refine the final evaluation model, maturity model, before approving it for case study interviews.

Both suggestion system practitioners were having more than six years of experience in the healthcare industry. The first one holds a management degree with ten-year experience and works in government healthcare, mainly seeking institutional excellence. On the other hand, the second expert has worked for a private healthcare facility for little more than six years and holds a bachelor degree in the organizational psychology domain. The researcher approached both experts due to their knowledge and exposure to the study domain. Finally, the practitioners are middle to senior-level employees in their organisations.

3.6 Case Study Strategy

This method is useful for trying, testing, and validating theoretical models in real-world situations. Yin (2003) defined a case study as a research strategy, which involves investigating any specific thing in the real world's context and more

specifically when the context is not clear. Furthermore, the case study technique is also appropriate in both philosophy and social constructivism. This research study's case study method is useful for testing the proposed theoretical model for evaluating suggestion systems based on their usability in real-world situations. Therefore, the researcher adopted the case study method to validate the proposed model in Saudi healthcare facilities.

3.6.1 Case Study Design

Yin (2009) classified case studies into three categories: explanatory, descriptive and exploratory. In the illustrative form, data is seen from different angles to explore the data's underlying patterns. This type would help identify any causal links among the collected data, especially when the experimental or survey setup is too complicated (Yin, 2003). In the descriptive form of case studies, the research is usually started with a descriptive theory on which the framework is established. Zainal (2007) argued that the challenge of this type of case studies is the researcher's basic familiarity with the dynamics of the selected descriptive theory. In case of failure of this type, it is usually assumed that description is not properly done or understood. And lastly, the exploratory study focuses on those points, which are of interest to the researcher. (Yin, 2009).

Furthermore, as McDonough and McDonough (1997) investigated, some other types of case studies are also important from a research point of view; such as evaluative and interpretive case studies. In an interpretative study, researchers try to figure out some patterns from data and interpret them in various ways based upon

their assumptions and constraints. On the other hand, the evaluative case studies focus more on judging and evaluating data instead of only interpretation.

This research has adopted the evaluative approach of case study to validate the proposed model and assess the degree of each success factor existing in each organisation. Then the research findings can open opportunities for further improvements in the Saudi healthcare sector.

After the selection of the case study, the researcher needs to choose a case study design. The selection of the case study is based on the premise that selected task must be capable of doing comparative analysis and answering the questions based on the study's contents (Saunders et al., 2009). In this regard, a single case study method is used to represent any sort of unique case. On the other hand, multiple cases are used if a study contains more than a single case.

Saunders et al. (2009) argued that the reason behind the selection of multiple case studies focuses to see the comparative effects of the same points in various situations and from various angles. However, the method of numerous case studies is preferred over the method of single case study. If the researcher chooses a single case, there needs to be a strong justification for the choice Yin (2009).

In the present research, the method of multiple case study approach is used to validate the proposed model by testing the model in two Saudi healthcare facilities to gain valuable data. The data was collected qualitatively through unstructured interviews and evidence to support the research findings was also collected using the six sources of evidence, Yin (2009). Finally, although the case study approach

offers many advantages (Zainal, 2007; Noor, 2008, Yin, 2009), this approach has disadvantages too.

The disadvantages might be the limitation in getting access to an organisation, time-consuming tasks, and the difficulty in understanding the events in isolation of the historical background (Collis & Hussey, 2009).

3.7 Data Collection

In this section, both primary and secondary data were used to gather information and data collection. The literature review is consulted for the purpose of secondary data. The initial model is developed with the help of secondary data, which is later used to interpret the results of the primary data collection. Finally, the suggestion system success factors and their relationship with the selected usability models are studied. Similarly, for the sake of primary data, the current research utilises both qualitative and quantitative methods to collect data and achieve its aim and objectives.

In this research and due to its nature, both data types were used. Quantitative data was preferred to understand the significance of suggestion systems success parameters, for which the questionnaires are used. On the other hand, qualitative data was used to define the clusters and refine the evaluation model. Finally, qualitative content analysis was also used to collect both case studies.

3.7.1 Secondary Data

Secondary data is the one, which is already available in the databases and collected for some other purpose (Malhotra and Birks 2007). Other research have collected

this data for their requirement and can be used in different studies. This data is available in different journals, books or other databases. Moreover, diversified opinions can be sought from this data due to its use by multiple researchers. As observed by Hollensen and Schmidt (2006), secondary data is easily available and comparatively less expensive than the primary data. Furthermore, it can expand researchers' knowledge and help them in various assumptions.

From the literature review, researchers can access different secondary data types based on which they can develop their theoretical model and proceed for further analysis. In the present research, 18 suggestion systems success factors were identified from the literature review. In addition to that and as part of the literature review exercise, a thorough analysis of usability models were explored. One of the usability models was selected for further use in this research.

3.7.2 Primary Data

Primary data is the one, which is collected by researchers to fulfil their specific needs while solving a different kind of research problems (Malhotra and Birks 2007). Researchers collect this data to address specific objectives. Primary data includes two types of data. One is known as qualitative, while the other is known as quantitative. Both types of data are interrelated because the numbers of the quantitative data depend upon the qualitative data's judgments. The primary data collected was the base for latent factors development and refined model.

In the present research, a mixed-method approach is used that involves both quantitative and qualitative data. Hadi-Vencheh and Niazi-Motlagh (2011) discussed that by following the mixed method, researchers can utilise the

advantages of both methods, besides reducing the handicaps of an individual. Furthermore, the quality of data that a researcher gains at the data collection stage is better than using just one method.

Moreover, Teddie and Tashakkori (2010) argued that mixed or multiple method approaches could be beneficial if more opportunities are offered for each researcher to provide adequate answers to the research questions.

3.8 Validity and Reliability

During any sort of research, the authenticity and reliability of the data are conserved very crucial to evaluate the quality of research. Validity and reliability are about the accuracy and consistency of the measure, respectively. In this research, both validity and reliability are essential since the research adopted both questionnaire and interview as data collection methods.

3.8.1 The Validity of Data Collection Methods

The concept of validity in research relates to the credibility of the results and findings, which can be deduced from any piece of data (Bryman, 2011). It concerns measurements and procedures that the researcher undertook during data collection for data quality purposes. Using any type of questionnaire does not automatically guarantee that the collected data would be useful research. Apuke (2017) argued that any questionnaire used in the research cannot measure with a guarantee that the intended responses are collected. Therefore, it may not yield the intended data needed to draw meaningful conclusions. Therefore, in the present research, to satisfy the validity requirements, an elaborative literature review was conducted to

focus on the meaning of usability and the suggestion systems critical success factors. Furthermore, it was decided to conduct a pilot study was conducted before the final distribution of the questionnaire.

Moreover, the researcher adopted the multiple case study method (in two Saudi healthcare facilities) to improve the research validity. In the case study method of data collection with an objective to generate precise findings, the researcher considered multiple sources of evidence usually referred to as triangulation (Oates & Capper, 2009). The researcher also adopted Yin's six potential sources: documentation, archive records, direct observation, interviews, participants' observation and physical artefacts.

3.8.2 The Reliability of Data Collection Method

Somekh and Lewin (2007) defined reliability as the capacity of the system to repeatedly give the same results. Based on this definition, there are three main factors that need to be achieved to ensure the reliability of research: consistency, enough proof, and the rigour of data authenticity.

In relation to collecting data and analysing it, the research design had obtained consistency with compelling evidence to attain accuracy in the analysis. The first stage of research involves collecting data through questionnaires to understand the drivers' suggestion systems and critical success factors. The second stage involves a virtual brainstorming session to confirm the practical number of latent factors and name them. In the third stage, the evaluation model was refined to sing a virtual brainstorming session with two experts. The third stage involves the validation of the refined model in two Saudi health care facilities which involved interviews,

observations, and documentation. The researcher believes that the 138 questionnaire responses and subsequent brainstorming sessions and both case study interviews provide sufficient evidence to answer the research questions and achieve the desired objectives.

Furthermore, the proper sample with the familiarity of suggestion systems was invited to participate in the questionnaire. The questionnaire cover letter explained the research aim and specific objectives and addressed the protection of privacy, which is an important ethical issue. The ethical issues were also explained to individuals who participated in case study interviews.

3.9 Data Analysis

In any research, data analysis is crucial after its collection. In this section, the researcher will distribute the 5-point Likert type questionnaire to collect data followed up by the brainstorming sessions for usefulness and reliability of the information. As mentioned earlier, this research has adopted mixed methods to collect data; both quantitative and qualitative. The process of data analysis mainly involves the three main steps: (1) preparation of data, (2) descriptive stats (3) inferential stats.

The first step is used to check the data, after which it is transformed into a structured database by integrating various parameters. Preparing qualitative data is different from quantitative data. As in qualitative method, the data is organised with the support of a virtual brainstorming session and then convert into the document. However, during the process, both observations, notes, and recordings should not be lost during the process.

On the other hand, quantitative data was prepared with statistical software (SPSS) in which the data is entered from the questionnaire and processed for further analysis. The second step involves the description of results in a summarised form. In other words, it provides the researcher with a graphical presentation of data analysis that produces the main points emerging from the conducted interviews or main observation. The third and final step is inferential statistics, which investigates questions and the model in-depth. The results of this step conclude with the addition of judgments about results and observations of significant findings. In addition, since this research adopted case studies to validate the proposed model, and adopted the deductive approach, Yin (2003) suggested an explanation building procedure that attempts to analyse the relevant data for exploratory case studies.

As a summary, the mixed data collected using the 5-point Likert scale questionnaire and though the virtual brainstorming sessions were analysed using two methods, Factor Analysis and Analytical Hierarchy Process. The following subsection will briefly illustrate both methods.

3.9.1 Factor Analysis

The method of Factor Analysis is used to conduct multivariate analysis. It seeks to understand the structure of a different set of variables showing similar patterns among multiple measured variables. FA is a technique which uses statistics to identify multiple relations amongst the studied variables besides explaining their common underlying factors. Furthermore, it can be applied to identify the fundamental patterns of multiple variables with an objective to summarise them into a lesser number of critical components.

In this research, the exploratory factor analysis technique is used to cluster the 18 suggestion systems factors of success into a smaller number of groups using a 5-point Likert questionnaire (Ong & Puteh, 2017). Fellows and Liu and Hai (2005) argued that factor analysis is a type of underlying construct with a combination of variables; and is latent because it cannot be observed and measured directly but only through the constituent variables. The statistical analysis was conducted using a statistical analysis software called SPSS. As mentioned earlier, the ultimate objective is to reduce the number of variables into a smaller number of highly reliable latent factors or components to assess the success of suggestion systems in Saudi healthcare facilities.

3.9.2 Analytical Hierarchy Process

The method of Analytic Hierarchy Process (AHP) is profoundly used in the applications of decision-making and problem-solving that involves multiple factors (Hadi-Vencheh & Niazi-Motlagh, 2011). The first step in applying AHP is to divide the bigger decision-making problem into a hierarchy of small factors, after that, a matrix is developed for the purpose of pair-wise comparison to evaluate the significance of all measured variables within each factor one to another at a time (Tahiri et al., 2008). Finally, the major latent components are also evaluated based on their importance among themselves. In this research study, latent factors final confirmation and pair-wise comparison matrices construction were done through a virtual brainstorming session with two suggestion systems practitioners before calculating the weights within and among latent factors.

3.10 Ethical Issues

It is crucial to address several ethical issues in the data collection phase to protect all participants' ethical considerations. These issues are mostly related to voluntary participation, informed consent, anonymity and confidentiality.

In this research, participation is voluntary. All the questions in questionnaires/interview are just related to the research subject, and all responses will be eventually consolidated and used for research purposes only. Before requesting respondents to participate in the study, the researcher provided an introduction to all participants about the requirements, aims, and objectives of the research topic.

The researcher considers that the participants' privacy is essential, and it is paramount to avoid any sort of risk or harm to them. Moreover, it is also ensured that in the survey questionnaire, no questions of personal nature should be asked due to which the participants face any sort of inconvenience or feel uncomfortable. Therefore, the researcher intends to keep the participant's information confidential, and may not be available to anyone, who is not a part of the present research. All submitted responses will be password protected and saved electronically under the researcher's responsibility.

Furthermore, the questionnaire responses will be destroyed within two years of receipt, and participants also have the freedom to quit or withdraw at their convenience anytime during the survey. In that case, their responses will be removed immediately from the system.

Responses will be anonymous to others but confidential to the researcher only; neither participant information nor feedback will be shared with any person or agency. Finally, each participant is given the option to provide a summary of the present research if requested by them.

3.11 Research Limitations

The research processes have been successful in achieving the research objectives. However, specific difficulties are also encountered during this process. The first and foremost is the Covid19 pandemic and its impact on people's moral to participate especially the healthcare personnel who were busy with their duties. Fortunately, technology helped in reaching out to healthcare professional and encouraging them to participate. The second obstacle was the lack of literature on the research subject in the Saudi healthcare industry or even the Arab healthcare industry. The third difficulty was the language since the sample size represents all personnel in healthcare facilities, and not all of them speak and understand English. Hence, the questionnaire was developed in both Arabic and English.

Finally, and during the case study, some of the prescheduled interviews were cancelled or postponed due to participants' work schedule assignments and routine work schedule. Furthermore, the researcher had difficulty in collecting documents as evidence in the researcher findings. This might happen because of the fear of releasing proprietary information despite the researcher's assurances.

3.12 Summary

This chapter deliberated upon the research philosophy, research methodology, data collection and the techniques of data analysis. Suggestion system implementation practices are also discussed that involve social interactions, interactions, and the barriers behind it. The present research focuses on social stance due to the nature of difference among human beings in their responsibilities and thinking like a social and emotional actor. Moreover, the role of human thought as in relation to subjectivity also came under discussion.

Present research involved three stages of data collection. This research applied both quantitative and qualitative methods of data collection and analysis (mixed-method research). The first stage identified suggestion systems success factors applied to a Saudi Arabian healthcare facility through self-administrated questionnaires. The next stage involved the brainstorming session of two suggestion system administrators, which helped define and refine the elements of the developed suggestion system evaluation model. The final stage was conducted to evaluate the refined model through two case studies in two Saudi healthcare facilities. During this stage, data was gathered from several sources, including documents, interviews, participants' questionnaire, direct observations, and archival records. Before the data collection started, the questionnaire was tested with the help of the pilot study. The research sample size was chosen from Saudi healthcare facilities. For the questionnaires and interviews, the researcher approached a few experts in this area and healthcare personnel in six healthcare facilities.

3.13 The Way Forward

Chapter 4 will present the analysis of the collected data. The analysis starts with a high level of descriptive statistics before clustering the important success factors using Expletory Factor Analysis, EFA. Once clusters are identified, the Analytic Hierarchy Process, AHP, will be implemented. Chapter Four will be concluded with a detailed model with prioritised success factors. Chapters Five and Six will be focusing on tow case studies. Chapter Seven compares and analyses the assessment results of the two cases of health care studies. Finally, Chapter Eight concludes with a discussion, and future research recommendations are outlined.

Chapter 4 : Data Analysis

4.1 Introduction

This chapter presents the surveyed data analysis for both factor analysis and the model's refinement using brainstorming sessions approach.

The first stage of refinement is the combining of factors. The second level of refinement is the refinement of different levels of maturity.

Finally, AHP was tested to calculate the weights of the measured variables within the resulted constructs. A brainstorming session was conducted to construct the pairwise comparison matrices.

4.2 Survey Data Analysis

The following sub-sections illustrate the detailed analysis of the surveyed data. The first part covers the participants' profile data while the later parts present the different factor analysis outputs.

4.2.1 Profile of the Participants

The questionnaire was electronically (Google forms) distributed to employees of six Saudi healthcare facilities who adopt suggestion systems. The questionnaire, as mentioned earlier, contained both general and specific questions. The general questions were to get insights into the participant's profile. The researcher targeted all level employees and was able to gather 138 responses in total in order to obtain appropriate data. Analysis reveals that most of the participants were more than

thirty-year-old. The age profile of the participants is documented in Fig. 4.1. Furthermore, participation was almost equal between males and females. Gender of Participants is shown in Fig. 4.2.

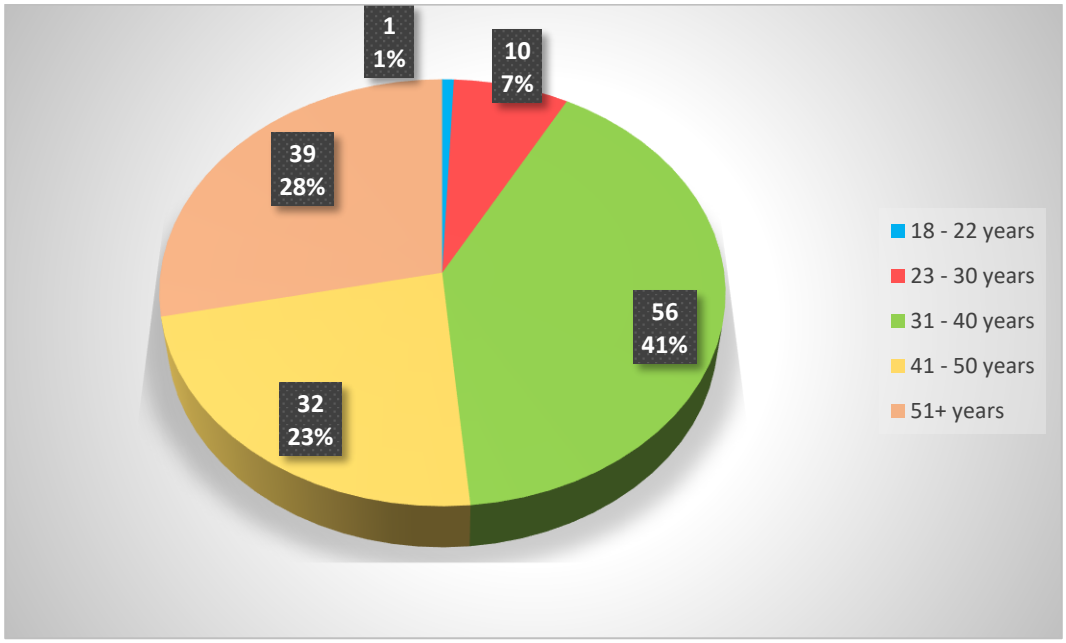

Figure 4.1 Age Profile.

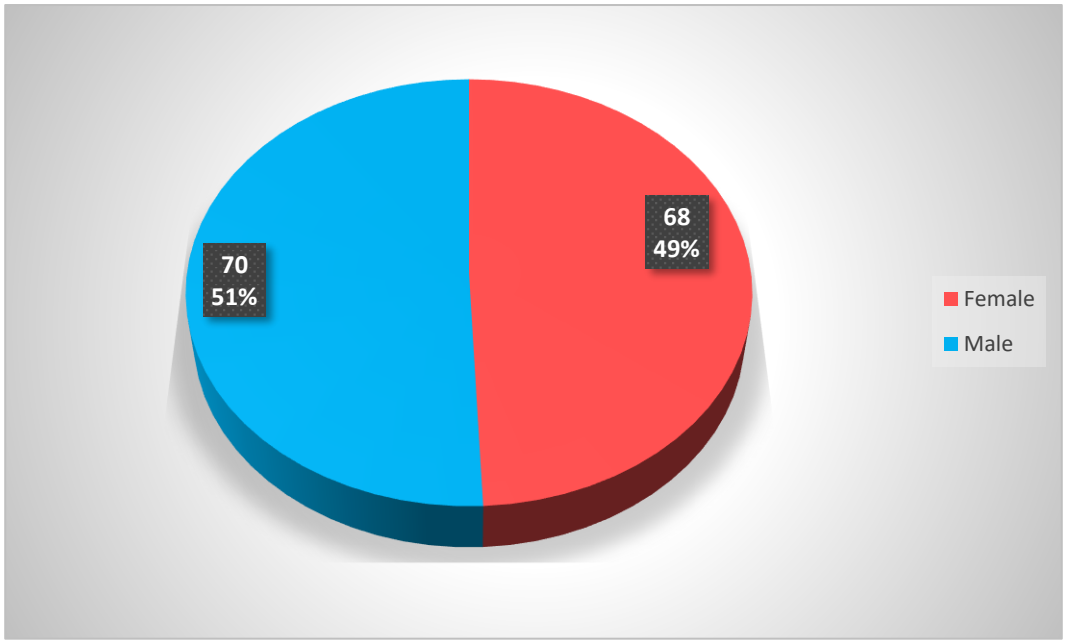

Figure 4.2 Gender.

In terms of participant's education, seventy-six per cent of them were Medical Degrees holders. On the other hand, twenty-two per cent of them were either management or non-medical degrees holders. Figure 4.3 illustrates the education of participants.

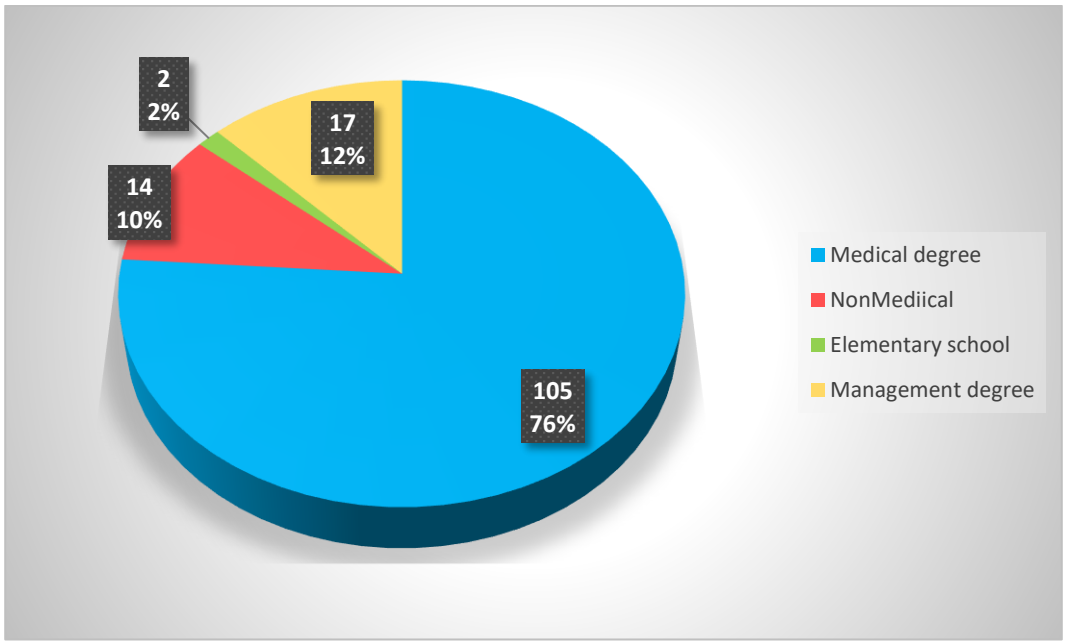

Figure 4.3 Educational Qualification.

Participants were also asked about the duration of their employment in the healthcare sector. Ten per cent of them replied that they had less than three years of work experience; twelve per cent had between three and six years of experience, while Seventy-eight per cent of them are found to have more than six years of work experience, as shown in Fig. 4.4.

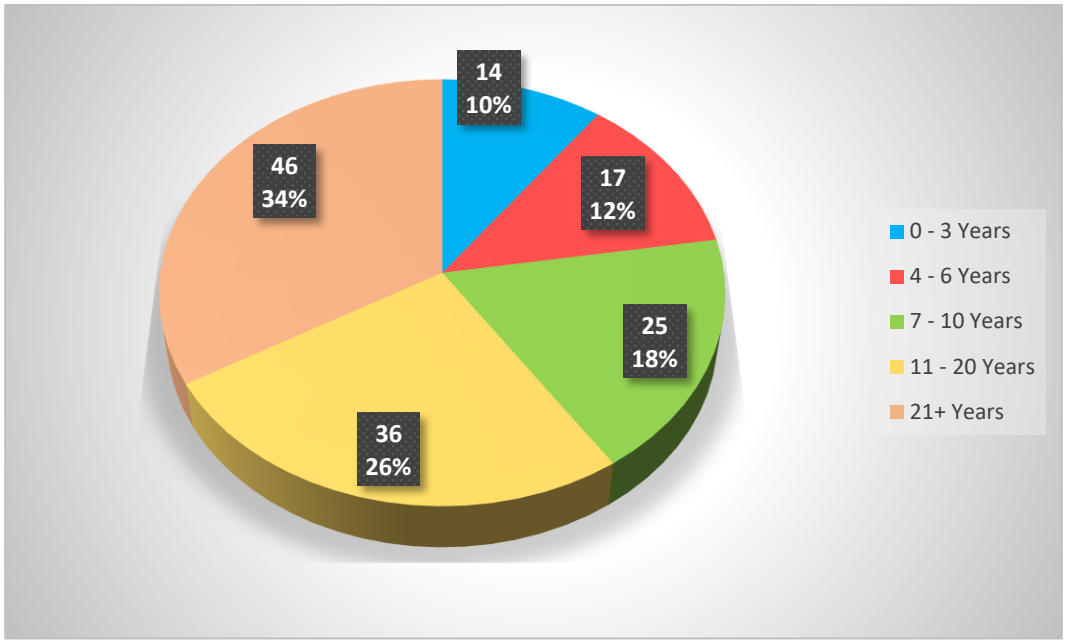

Figure 4.4 Work Experience.

In terms of familiarity with suggestion systems, sixty-one per cent had more than three years of familiarity and participation in suggestion systems (Fig. 4.5).

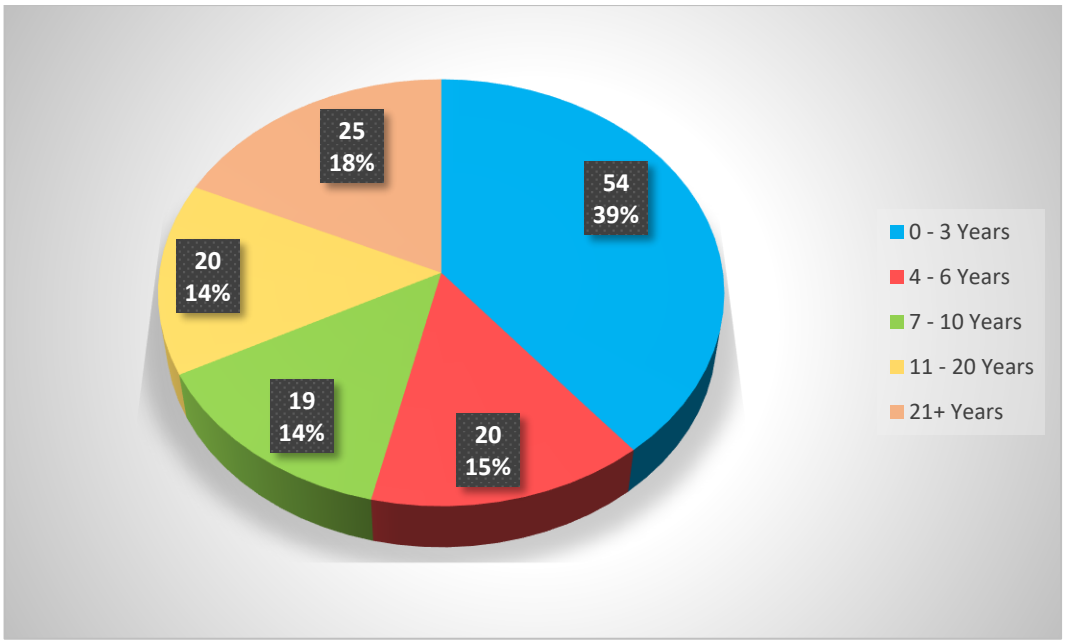

Figure 4.5 Experience in Suggestion Systems.

The analysis also shows that fifty-five per cent of the participants were doctors and physicians, twenty per cent were para-medical staff, and eighteen per cent were holding managerial positions, please see Fig. 4.6.

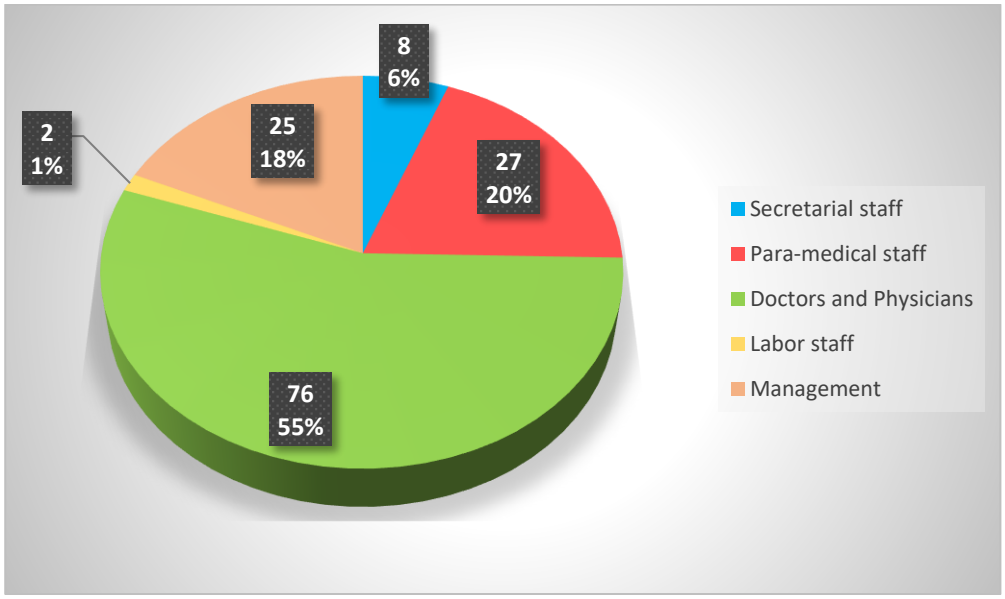

Figure 4.6 Job Class.

All participants were asked if they had submitted a suggestion in the past; seventy-five per cent of them had indeed submitted one or more suggestions (Fig. 4.7).

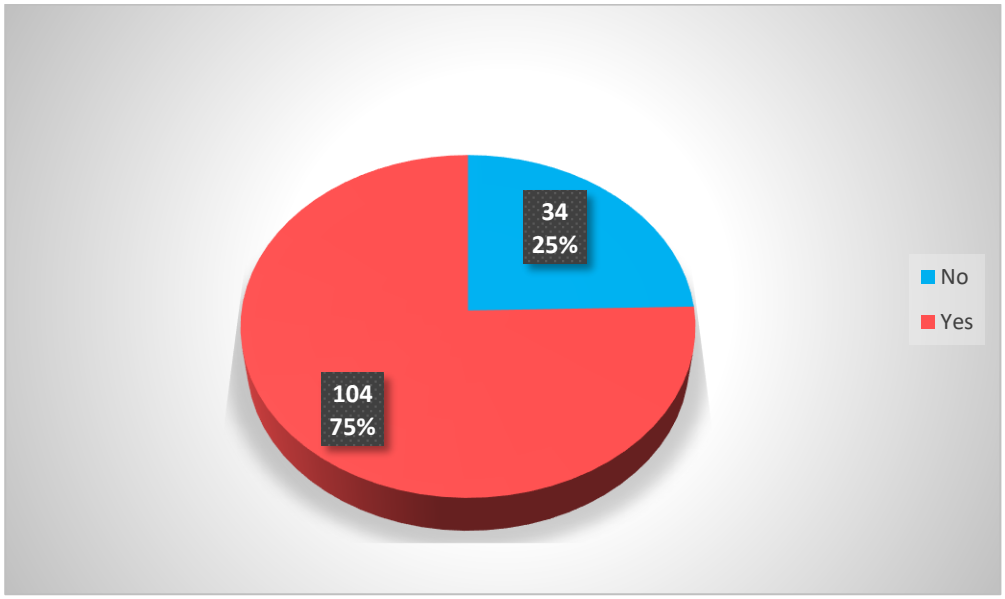

Figure 4.7 History of Submission.

Participants were also asked about their submission frequency. The analysis shows that eighty-eight per cent of them had submitted more than two suggestions a year, while twenty-two per cent just submitted one suggestion per year (Fig. 4.8).

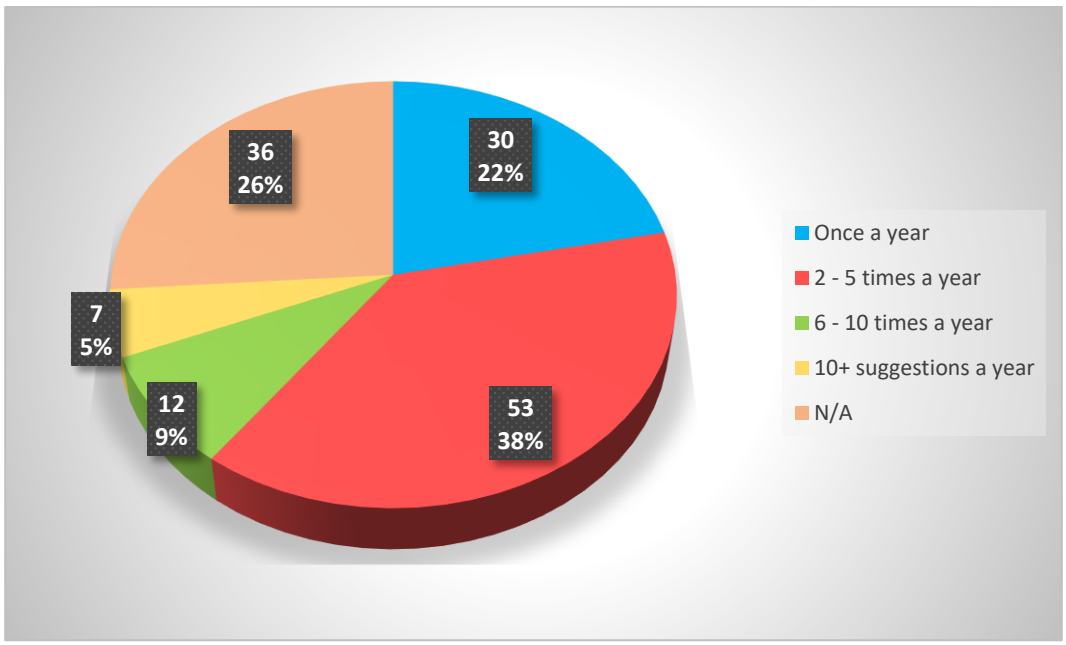

Figure 4.8 Frequency of Submission.

Furthermore, participants were asked if their suggestions had been accepted for award or implementation in the past. Results show that fifty-three present of the participants were rewarded for their suggestions. Results also show that eighty-five per cent of the rewarded suggestions were not implemented (Fig. 4.9).

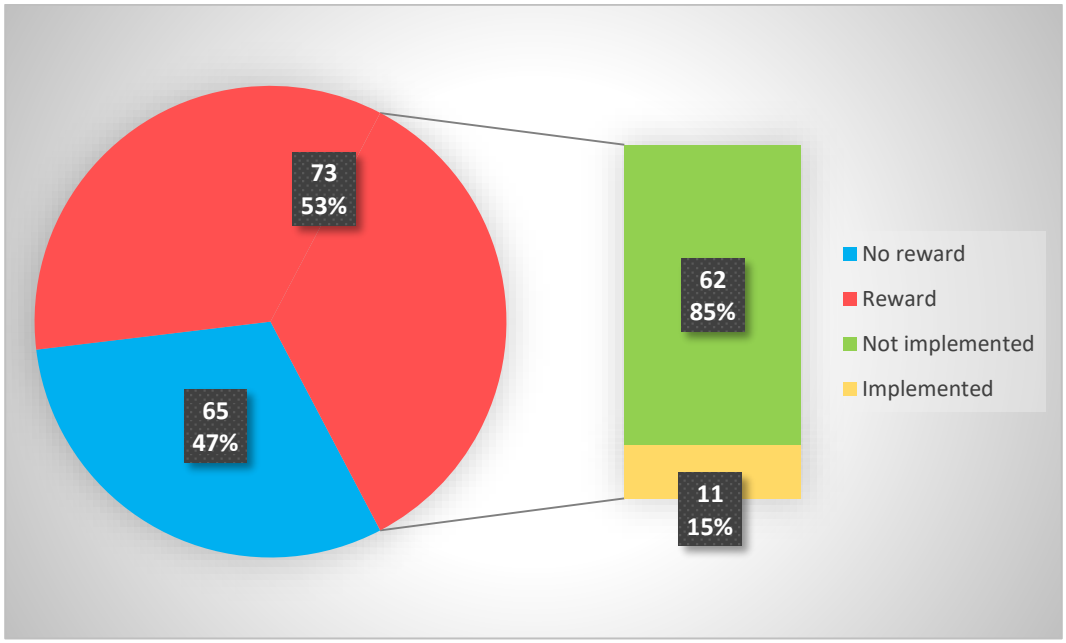

Figure 4.9 Reward and Suggestion Implementation.

Out of the total participants, sixty-four per cent of them confirmed that they received detailed feedback for their suggestions (Fig. 4.10).

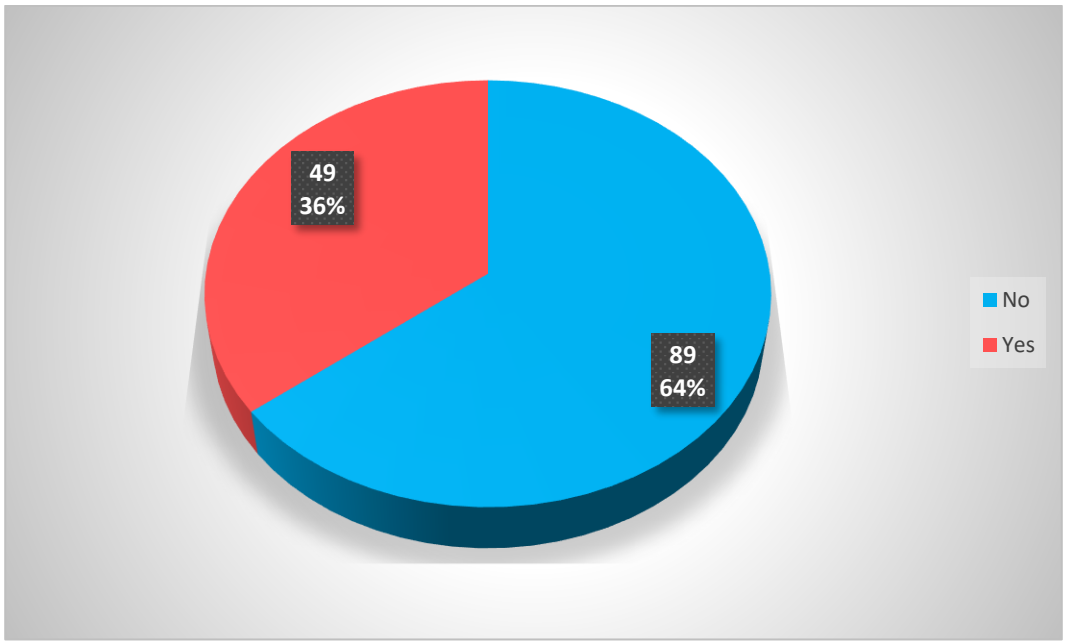

Figure 4.10 Feedback.

In terms of the suggestion system types, forty-two per cent of the participants had local departmental suggestion systems, while thirty-four per cent had central systems managed at the head office and supported locally Fig. (4.11).

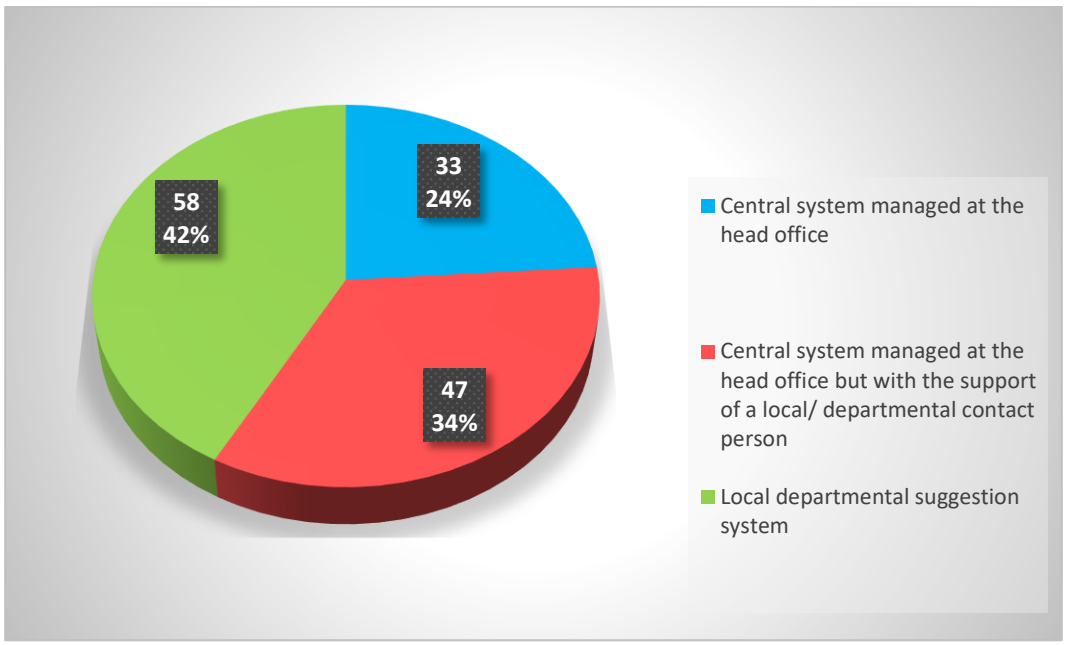

Figure 4.11 Type of Suggestion System.

Forty-eight per cent of the participants had both online and paper-based suggestion systems, while twenty-seven per cent had online one. Twenty-five per cent of them had a paper-based system (Fig. 4.12).

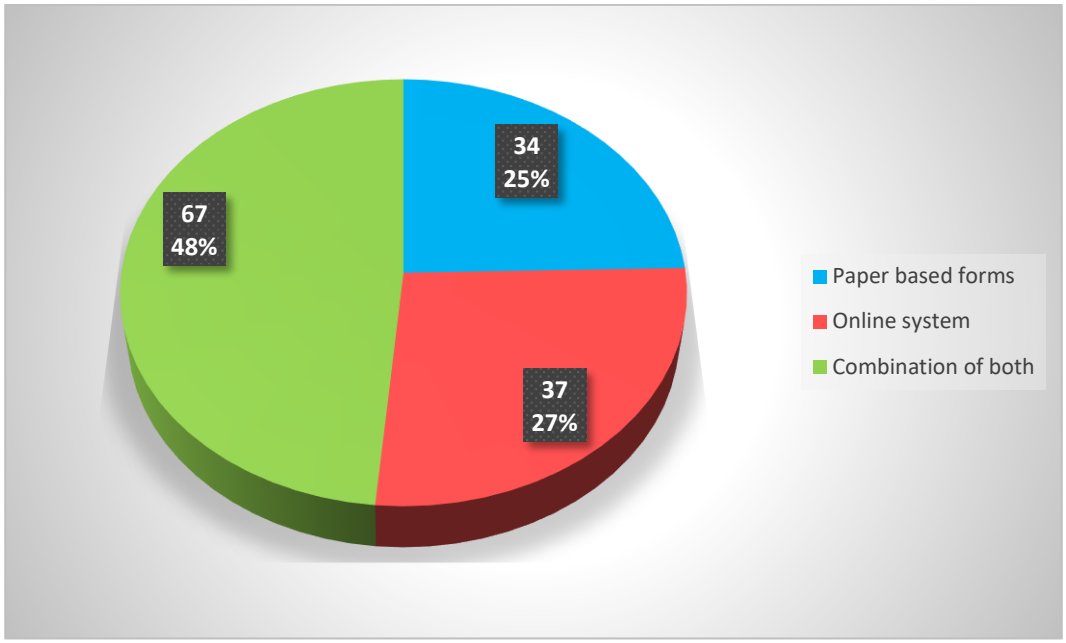

Figure 4.12 Platform of Suggestion System.

Finally, seventy-four per cent of the participants confirmed that they had received certifications for their submitted suggestions, while seven per cent of them received financial rewards (Fig. 4.13).

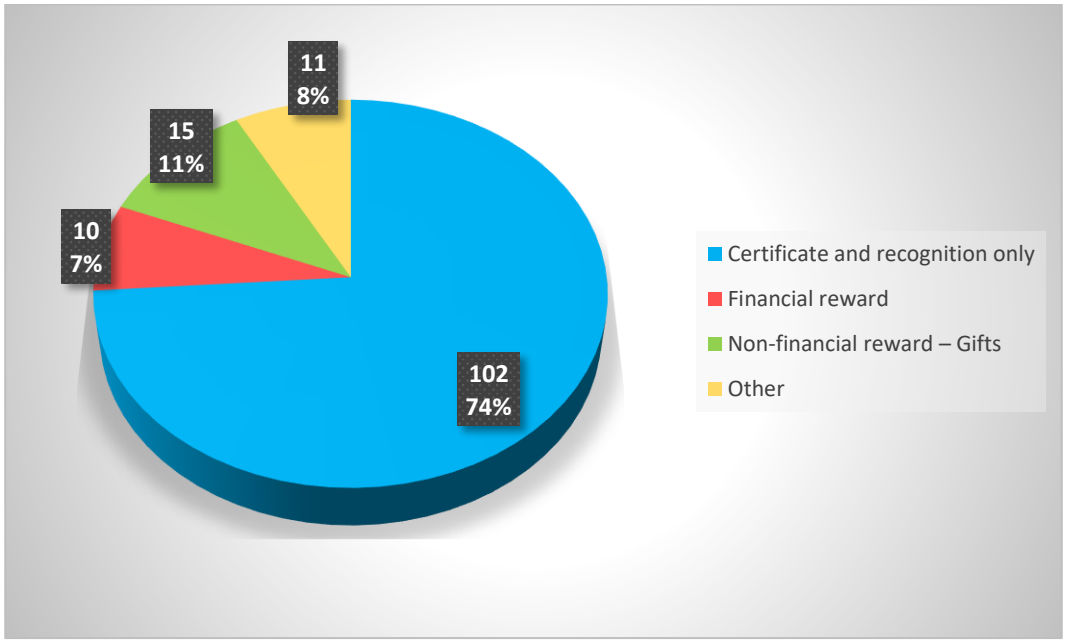

Figure 4.13 Type of Reward.

4.2.2 Factor Analysis

4.2.2.1 Factor Analysis on All Suggestion System Success Factors

The first step is to apply the factor analysis technique on the eighteen suggestion system success factors. A descriptive statistics table of the studied factors is given in Table 4.1.

Table 4.1 Descriptive Statistics.

Success Factor	Mean	Std. Deviation	Sample Size (n)
Resources (Q15)	3.53	1.215	138
Goal Setting (Q16)	3.17	1.073	138
Social Media (Q17)	3.24	1.218	138
Social Networking (Q18)	3.40	1.293	138
Colleague Support (Q19)	3.25	1.225	138
Supervisory Support (Q20)	3.25	1.203	138
Equality (Q21)	3.23	1.216	138
Publicity (Q22)	3.26	1.116	138
Training (Q23)	3.50	1.141	138
Feedback (Q24)	3.20	1.160	138
Rewards (Q25)	3.15	1.196	138
Compliance (Q26)	3.33	1.096	138
Ease of Use (Q27)	3.30	1.194	138
Trust (Q28)	3.20	1.106	138
Clarity of Scope (Q29)	3.34	1.084	138
Anonymous (Q30)	3.46	1.147	138
Autonomy (Q31)	3.22	1.159	138
Problem Challenge (Q32)	3.10	1.246	138

It is obvious that all investigated factors scored higher than one, which means that all these variables have some impact on the usability of the suggestion system.

The correlation matrix (R-matrix), as shown in Table 4.2. Indicates the numbers in

a rectangular array. These numbers show the strength of correlation between different variables of the survey questionnaire. (Kinner & Gray, 2010). Pearson coefficient of correlation is shown on table's top half while the bottom half shows the single-tailed importance of these correlation coefficients. As the coefficient of correlation between the same variable is described with 1; therefore, the principal diagonal of the matrix is also tabulated as 1. By using this kind of correlation, we can check the pattern of relationships.

Table 4.2 Correlation Matrix.

		Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32
Correlation	Resources (**Q15**)	1.00	.382	.387	.487	.559	.682	.558	.565	.608	.586	.537	.584	.557	.552	.649	.506	.485	.022
	Goal Setting (**Q16**)	.382	1.00	.303	.292	.256	.350	.293	.340	.286	.224	.173	.285	.277	.229	.225	.214	.256	.374
	Social Media (**Q17**)	.387	.303	1.00	.713	.631	.561	.445	.507	.544	.580	.511	.514	.532	.501	.552	.522	.484	.032
	Social Networking (**Q18**)	.487	.292	.713	1.000	.643	.629	.479	.646	.635	.627	.579	.606	.588	.522	.605	.551	.563	.011
	Colleague Support (**Q19**)	.559	.256	.631	.643	1.00	.760	.608	.615	.710	.679	.682	.683	.617	.632	.706	.615	.583	.074
	Supervisory Support (**Q20**)	.682	.350	.561	.629	.760	1.00	.663	.668	.758	.701	.750	.694	.658	.665	.712	.640	.634	.182
	Equality (**Q21**)	.558	.293	.445	.479	.608	.663	1.00	.574	.636	.613	.608	.599	.615	.617	.632	.536	.548	-.025
	Publicity (**Q22**)	.565	.340	.507	.646	.615	.668	.574	1.00	.670	.675	.654	.716	.647	.638	.680	.573	.536	.254
	Training (**Q23**)	.608	.286	.544	.635	.710	.758	.636	.670	1.00	.711	.703	.717	.648	.616	.699	.661	.621	.241
	Feedback (**Q24**)	.586	.224	.580	.627	.679	.701	.613	.675	.711	1.00	.804	.687	.746	.731	.717	.654	.623	.162
	Rewards (**Q25**)	.537	.173	.511	.579	.682	.750	.608	.654	.703	.804	1.00	.718	.709	.706	.765	.673	.607	.122
	Compliance (**Q26**)	.584	.285	.514	.606	.683	.694	.599	.716	.717	.687	.718	1.00	.697	.704	.733	.673	.590	.034
	Ease of Use (**Q27**)	.557	.277	.532	.588	.617	.658	.615	.647	.648	.746	.709	.697	1.00	.728	.805	.639	.689	.166
	Trust (**Q28**)	.552	.229	.501	.522	.632	.665	.617	.638	.616	.731	.706	.704	.728	1.00	.784	.660	.649	.245
	Clarity of Scope (**Q29**)	.649	.225	.552	.605	.706	.712	.632	.680	.699	.717	.765	.733	.805	.784	1.00	.672	.740	.055
	Anonymous (**Q30**)	.506	.214	.522	.551	.615	.640	.536	.573	.661	.654	.673	.673	.639	.660	.672	1.00	.724	.003
	Autonomy (**Q31**)	.485	.256	.484	.563	.583	.634	.548	.536	.621	.623	.607	.590	.689	.649	.740	.724	1.00	.100
	Problem Challenge (**Q32**)	.022	.374	.032	.011	.074	.182	-.025	.254	.241	.162	.122	.034	.166	.245	.055	.003	.100	1.00

It is also important to check both Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of Sphericity. These two tests are essential for factor analysis reliability. Kaiser (1974) recommended a bare minimum of 0.5.

Table 4.3 KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	Approx. Chi-Square	2085.020
	df	153
	Sig.	.000

As shown in Table 4.3, the KMO is 0.911 which illustrates that our sample size is sufficient and adequate to use factor analysis for further investigation. Similarly, Bartlett's test measures the null hypothesis in relation to the correlation identity matrix (Ong & Puteh, 2017). In order to ensure the use of factor analysis, some correlation is required between different factors. It means that if the value of R-matrix shows it as an identity matrix, then the corresponding value of relationship coefficients will be 0. For instance, if the value is less than 0.05, it indicates that the R-matrix is not an identity matrix. In this case, some factors having relationships should be included for the analysis purpose. In the present study, the value of Bartlett's test is highly significant, which means that the method of factor analysis is highly appropriate for further analysis.

Table 4.4 Communalities.

Success Factor	**Initial**	**Extraction**
Resources (Q15)	1.000	.542
Goal Setting (Q16)	1.000	.797
Social Media (Q17)	1.000	.668
Social Networking (Q18)	1.000	.725
Colleague Support (Q19)	1.000	.705
Supervisory Support (Q20)	1.000	.758
Equality (Q21)	1.000	.572
Publicity (Q22)	1.000	.674
Training (Q23)	1.000	.724
Feedback (Q24)	1.000	.758
Rewards (Q25)	1.000	.775
Compliance (Q26)	1.000	.719
Ease of Use (Q27)	1.000	.739
Trust (Q28)	1.000	.773
Clarity of Scope (Q29)	1.000	.813
Anonymous (Q30)	1.000	.663
Autonomy (Q31)	1.000	.624
Problem Challenge (Q32)	1.000	.895

Table 4.4 depicts the similarities of values. Initially, it was assumed that all varying values will be common, therefore, commonalities before the extraction work are found to be one. After factors have been extracted, it shows the real range of variance. It is observed that more than 71% of the variance in terms of colleagues support is either associated or shared. Moreover, the variance of each factor can easily be depicted by those factors, which are represented after the extraction process (Kinner & Gray, 2010).

Table 4.5 Total Variance Explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative%	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.665	59.248	59.248	10.665	59.248	59.248	8.637	47.985	47.985
2	1.343	7.464	66.711	1.343	7.464	66.711	2.905	16.140	64.125
3	.917	5.094	71.805	.917	5.094	71.805	1.382	7.680	71.805
4	.782	4.343	76.148						
5	.620	3.443	79.591						
6	.478	2.654	82.245						
7	.461	2.561	84.806						
8	.421	2.340	87.145						
9	.370	2.054	89.199						
10	.338	1.877	91.076						
11	.302	1.678	92.754						
12	.272	1.509	94.263						
13	.229	1.273	95.536						
14	.220	1.221	96.756						
15	.197	1.095	97.852						
16	.182	1.013	98.865						
17	.121	.670	99.535						
18	.084	.465	100.000						

The above table (Table 4.5) shows the Eigen values that are associated with those factors which are taken as linear component (factor) in the process before extraction. However, after the rotation and extraction process, the first block of three columns, labelled Initial Eigenvalues, contains those values contributing to total variance (Ong & Puteh, 2017). Each factor is independently represented by an

eigenvalue that further elaborates the specific linear component. For example, the first factor explains 59.252% total variance. It can be seen that the first three factors explain relatively more than 71% of the total variance compared with subsequent factors which demonstrate level of variance. Therefore, SPSS, based on user's choice, extracts a specific factor. There are different ways to select the number of extracted factors. The first one is based on the eigenvalue, where we extract all factors that show eigenvalues more significant than one. Another method is to use the Parallel Analysis. However, the total amount of variation explained still a good measure to be considered.

The second block of three columns extracts sums of Square Loadings and repeats the output of the first block only for the selected number of factors, three in our case. The values in this part of the table are the same as the values before extraction. In the third block, Rotation Sums of Squared Loadings, the eigenvalues of the factors after rotation are displayed. The rotation has the effect of optimizing the factor structure. One consequence of this data is that the relative importance of the three factors seems to maintain equality.

Rotated component matrix is a matrix of the factor loading for each variable onto each factor (Kinner & Gray, 2000). It contains the same information as the component matrix except that it is calculated after rotation. A rotated factor matrix helps the researcher in grouping factors through the loading of each factor onto the five components. Each component can be a group for other factors with loadings more than 0.5. By looking at Table 4.6, we can see that clarity of scope, rewards, trust, feedback, ease of use, compliance, anonymous, autonomy, training,

supervisory support, colleague support, publicity, equality, and resources are loaded more than 0.5 on this factor or component.

On the other hand, assessment time, social networking, and social media are loaded on the second component. The third component has only the problem-solving variable. The next step is to study the reliability of each group based on Cronbach's Alpha measure.

Table 4.6 Component Matrix.

Success Factor	Component (Suppress value is 0.5)		
	1	2	3
Clarity of Scope (Q29)	.866		
Rewards (Q25)	.861		
Trust (Q28)	.851		
Feedback (Q24)	.826		
Ease of Use (Q27)	.820		
Compliance (Q26)	.774		
Anonymous (Q30)	.770		
Autonomy (Q31)	.756		
Training (Q23)	.746		
Supervisory Support (Q20)	.736		
Colleague Support (Q19)	.695		
Publicity (Q22)	.686		
Equality (Q21)	.665		
Resources (Q15)	.568		
Goal Setting (Q16)		.688	
Social Media (Q17)		.681	
Social Networking (Q18)		.659	
Problem Challenge (Q32)			.937

It is obvious that the Cronbach's Alpha of the first factor is 0.963, which is more than the minimum standard for reliability of 0.7 recommended by Santos (1999). This result clearly shows that the measure is highly reliable for measuring the construct, and no further reliability improvement is recommended.

On the other hand, the reliability of the second group is 0.708, as shown in the reliability table below. However, results show that the reliability can be increased to 0.832 if the goal-setting variable is removed. Therefore, we will repeat the factor analysis but this time without the goal-setting variable (i.e., based on 17 variables only).

4.2.2.2 Factor Analysis on 17 Suggestion System Success Factors

The descriptive statics and the correlation matrix tables are given in Tables 4.7 and 4.8, respectively.

Table 4.7 Descriptive Statistics.

Success Factor	Mean	Std. Deviation	Sample Size (n)
Resources (Q15)	3.53	1.215	138
Social Media (Q17)	3.24	1.218	138
Social Networking (Q18)	3.40	1.293	138
Colleague Support (Q19)	3.25	1.225	138
Supervisory Support (Q20)	3.25	1.203	138
Equality (Q21)	3.23	1.216	138
Publicity (Q22)	3.26	1.116	138
Training (Q23)	3.50	1.141	138
Feedback (Q24)	3.20	1.160	138
Rewards (Q25)	3.15	1.196	138
Compliance (Q26)	3.33	1.096	138
Ease of Use (Q27)	3.30	1.194	138
Trust (Q28)	3.20	1.106	138
Clarity of Scope (Q29)	3.34	1.084	138
Anonymous (Q30)	3.46	1.147	138
Autonomy (Q31)	3.22	1.159	138
Problem Challenge (Q32)	3.10	1.246	138

Table 4.8 Correlation Matrix.

		Q15	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32
Correlation	Resources (**Q15**)	1.000	.387	.487	.559	.682	.558	.565	.608	.586	.537	.584	.557	.552	.649	.506	.485	.022
	Social Media (**Q17**)	.387	1.000	.713	.631	.561	.445	.507	.544	.580	.511	.514	.532	.501	.552	.522	.484	.032
	Social Networking (**Q18**)	.487	.713	1.000	.643	.629	.479	.646	.635	.627	.579	.606	.588	.522	.605	.551	.563	.011
	Colleague Support (**Q19**)	.559	.631	.643	1.000	.760	.608	.615	.710	.679	.682	.683	.617	.632	.706	.615	.583	.074
	Supervisory Support (**Q20**)	.682	.561	.629	.760	1.000	.663	.668	.758	.701	.750	.694	.658	.665	.712	.640	.634	.182
	Equality (**Q21**)	.558	.445	.479	.608	.663	1.000	.574	.636	.613	.608	.599	.615	.617	.632	.536	.548	-.025
	Publicity (**Q22**)	.565	.507	.646	.615	.668	.574	1.000	.670	.675	.654	.716	.647	.638	.680	.573	.536	.254
	Training (**Q23**)	.608	.544	.635	.710	.758	.636	.670	1.000	.711	.703	.717	.648	.616	.699	.661	.621	.241
	Feedback (**Q24**)	.586	.580	.627	.679	.701	.613	.675	.711	1.000	.804	.687	.746	.731	.717	.654	.623	.162
	Rewards (**Q25**)	.537	.511	.579	.682	.750	.608	.654	.703	.804	1.000	.718	.709	.706	.765	.673	.607	.122
	Compliance (**Q26**)	.584	.514	.606	.683	.694	.599	.716	.717	.687	.718	1.000	.697	.704	.733	.673	.590	.034
	Ease of Use (**Q27**)	.557	.532	.588	.617	.658	.615	.647	.648	.746	.709	.697	1.000	.728	.805	.639	.689	.166
	Trust (**Q28**)	.552	.501	.522	.632	.665	.617	.638	.616	.731	.706	.704	.728	1.000	.784	.660	.649	.245
	Clarity of Scope (Q29)	.649	.552	.605	.706	.712	.632	.680	.699	.717	.765	.733	.805	.784	1.000	.672	.740	.055
	Anonymous (**Q30**)	.506	.522	.551	.615	.640	.536	.573	.661	.654	.673	.673	.639	.660	.672	1.000	.724	.003
	Autonomy (**Q31**)	.485	.484	.563	.583	.634	.548	.536	.621	.623	.607	.590	.689	.649	.740	.724	1.000	.100
	Problem Challenge (**Q32**)	.022	.032	.011	.074	.182	-.025	.254	.241	.162	.122	.034	.166	.245	.055	.003	.100	1.000

Analysis of the seventeen variables gives a KMO of 0.911 which illustrates that our sample size is sufficient and adequate to carry on with factor analysis. On the other hand, Bartlett's test is significant; therefore, there are some relationships between factors that will be included in the analysis (Table 4.9).

Table 4.9 KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.923
Bartlett's Test of Sphericity	Approx. Chi-Square	2016.481
	df	136
	Sig.	.000

Next, communalities, total variance explained, and the component matrix are given in Tables 4.10, 4.11, and 4.12, respectively.

Table 4.10 Communalities.

Success Factor	Initial	Extraction
Resources (Q15)	1.000	.567
Social Media (Q17)	1.000	.837
Social Networking (Q18)	1.000	.825
Colleague Support (Q19)	1.000	.718
Supervisory Support (Q20)	1.000	.751
Equality (Q21)	1.000	.630
Publicity (Q22)	1.000	.684
Training (Q23)	1.000	.736
Feedback (Q24)	1.000	.749
Rewards (Q25)	1.000	.740
Compliance (Q26)	1.000	.723
Ease of Use (Q27)	1.000	.730
Trust (Q28)	1.000	.750
Clarity of Scope (Q29)	1.000	.814
Anonymous (Q30)	1.000	.657
Autonomy (Q31)	1.000	.621
Problem Challenge (Q32)	1.000	.968

Table 4.11 Total Variance Explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.539	61.992	61.992	10.539	61.992	61.992	10.277
2	1.137	6.687	68.678	1.137	6.687	68.678	1.536
3	.824	4.849	73.527	.824	4.849	73.527	6.488
4	.687	4.043	77.570				
5	.490	2.885	80.455				
6	.467	2.750	83.205				
7	.450	2.646	85.851				
8	.404	2.374	88.225				
9	.342	2.010	90.236				
10	.318	1.873	92.108				
11	.273	1.606	93.714				
12	.231	1.358	95.072				
13	.222	1.308	96.379				
14	.206	1.215	97.594				
15	.187	1.101	98.695				
16	.136	.798	99.492				
17	.086	.508	100.000				

Table 4.12 Component Matrix.

Success Factor	**Component** (Suppress value is 0.5)		
	1	2	3
Clarity of Scope (Q29)	.913		
Trust (Q28)	.886		
Equality (Q21)	.857		
Ease of Use (Q27)	.836		
Resources (Q15)	.829		
Rewards (Q25)	.818		
Compliance (Q26)	.791		
Autonomy (Q31)	.780		
Anonymous (Q30)	.766		
Feedback (Q24)	.730		
Supervisory Support (Q20)	.725		
Training (Q23)	.659		
Publicity (Q22)	.591		
Colleague Support (Q19)	.532		
Problem Challenge (Q32)		.991	
Social Media (Q17)			.929
Social Networking (Q18)			.806

The reliability of the resulted groups were 0.832 and .963, respectively. Furthermore, no further reliability improvement is recommended.

4.2.2.3 Factor Analysis on the first construct 14 suggestion Success Factors

The descriptive statics and the correlation matrix tables are given in Tables 4.13 and 4.14, respectively.

Table 4.13 Descriptive Statistics.

Success Factor	Mean	Std. Deviation	Sample Size (n)
Resources (Q15)	3.53	1.215	138
Colleague Support (Q19)	3.25	1.225	138
Supervisory Support (Q20)	3.25	1.203	138
Equality (Q21)	3.23	1.216	138
Publicity (Q22)	3.26	1.116	138
Training (Q23)	3.50	1.141	138
Feedback (Q24)	3.20	1.160	138
Rewards (Q25)	3.15	1.196	138
Compliance (Q26)	3.33	1.096	138
Ease of Use (Q27)	3.30	1.194	138
Trust (Q28)	3.20	1.106	138
Clarity of Scope (Q29)	3.34	1.084	138
Anonymous (Q30)	3.46	1.147	138
Autonomy (Q31)	3.22	1.159	138

Table 4.14 Correlation Matrix.

		Q15	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31
Correlation	Resources (**Q15**)	1.000	.559	.682	.558	.565	.608	.586	.537	.584	.557	.552	.649	.506	.485
	Colleague Support (**Q19**)	.559	1.000	.760	.608	.615	.710	.679	.682	.683	.617	.632	.706	.615	.583
	Supervisory Support (**Q20**)	.682	.760	1.000	.663	.668	.758	.701	.750	.694	.658	.665	.712	.640	.634
	Equality (**Q21**)	.558	.608	.663	1.000	.574	.636	.613	.608	.599	.615	.617	.632	.536	.548
	Publicity (**Q22**)	.565	.615	.668	.574	1.000	.670	.675	.654	.716	.647	.638	.680	.573	.536
	Training (**Q23**)	.608	.710	.758	.636	.670	1.000	.711	.703	.717	.648	.616	.699	.661	.621
	Feedback (**Q24**)	.586	.679	.701	.613	.675	.711	1.000	.804	.687	.746	.731	.717	.654	.623
	Rewards (**Q25**)	.537	.682	.750	.608	.654	.703	.804	1.000	.718	.709	.706	.765	.673	.607
	Compliance (**Q26**)	.584	.683	.694	.599	.716	.717	.687	.718	1.000	.697	.704	.733	.673	.590
	Ease of Use (**Q27**)	.557	.617	.658	.615	.647	.648	.746	.709	.697	1.000	.728	.805	.639	.689
	Trust (**Q28**)	.552	.632	.665	.617	.638	.616	.731	.706	.704	.728	1.000	.784	.660	.649
	Clarity of Scope (**Q29**)	.649	.706	.712	.632	.680	.699	.717	.765	.733	.805	.784	1.000	.672	.740
	Anonymous (**Q30**)	.506	.615	.640	.536	.573	.661	.654	.673	.673	.639	.660	.672	1.000	.724
	Autonomy (**Q31**)	.485	.583	.634	.548	.536	.621	.623	.607	.590	.689	.649	.740	.724	1.000

The analysis of the seventeen variables gives a KMO of 0.950, which illustrates that our sample size is sufficient and adequate to move on with factor analysis. Similarly, Bartlett's test is also found to be significant, indicating the suitability of the factors that are included in the present analysis (Table 4.15).

Table 4.15 KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.950
Bartlett's Test of Sphericity	Approx. Chi-Square	1725.064
	df	91
	Sig.	.000

Next, the total variance explained, and the component matrix are given in Tables 4.16 and 4.17, respectively.

Table 4.16 Total Variance Explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.546	68.184	68.184	9.546	68.184	68.184	5.130	36.643	36.643
2	.686	4.897	73.081	.686	4.897	73.081	5.101	36.438	73.081
3	.517	3.693	76.774						
4	.495	3.536	80.310						
5	.451	3.219	83.530						
6	.394	2.813	86.343						
7	.341	2.437	88.780						
8	.323	2.304	91.084						
9	.278	1.985	93.069						
10	.242	1.731	94.800						
11	.234	1.671	96.472						
12	.200	1.428	97.900						
13	.193	1.381	99.281						
14	.101	.719	100.000						

Table 4.17 Component Matrix.

	Component (Suppress value is 0.5)	
	1	**2**
Resources (Q15)	.803	
Supervisory Support (Q20)	.773	
Training (Q23)	.714	
Colleague Support (Q19)	.693	
Equality (Q21)	.682	
Publicity (Q22)	.673	
Compliance (Q26)	.627	
Autonomy (Q31)		.835
Anonymous (Q30)		.777
Ease of Use (Q27)		.744
Trust (Q28)		.723
Clarity of Scope (Q29)		.720
Rewards (Q25)		.644
Feedback (Q24)		.635

The reliability of the resulted groups were 0.928 and .943, respectively. Furthermore, no further reliability improvement is recommended.

4.3 Results of Brainstorming Sessions

Two suggestion system administrators were used for several brainstorming sessions. The first reason for the brainstorming session was the refinement of the factor analysis data. The second reason was to refine the maturity levels. The third reason was to develop the AHP model.

4.3.1 Modified Factor Analysis

The factor analysis showed the following four constructs or groups (Fig. 4.14).

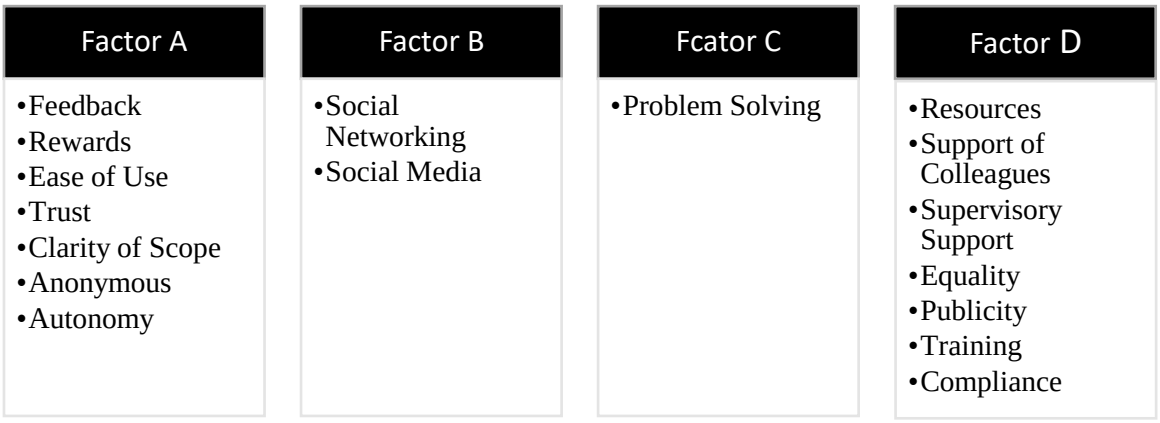

Figure 4.14 Factor Analysis Results.

To further refine the results of the factor analysis, and as mentioned earlier, the researcher invited two suggestion systems administrators to help with this research. They voluntarily agreed to help verify, refine, and validate. Both administrators were suggestion system administrators in Saudi healthcare facilities, and both of them had good years of experience in this field.

Before administering the questionnaire, all the participants were given a briefing about the aims and objectives of the research. All of them agreed to participate in several virtual meetings on Zoom. While going through the findings of the factor analysis approach and discussing different variables within these factors, they all came up with a joint recommendation to combine Factor A and Factor C into one factor and label it as Personal Factor. They also agreed to label Factor B as System and Institutional Factor. Finally, they recommended to label Factor D as Social Support Factor.

Hence, the modified model is shown in the following figure, Fig. 4.15.

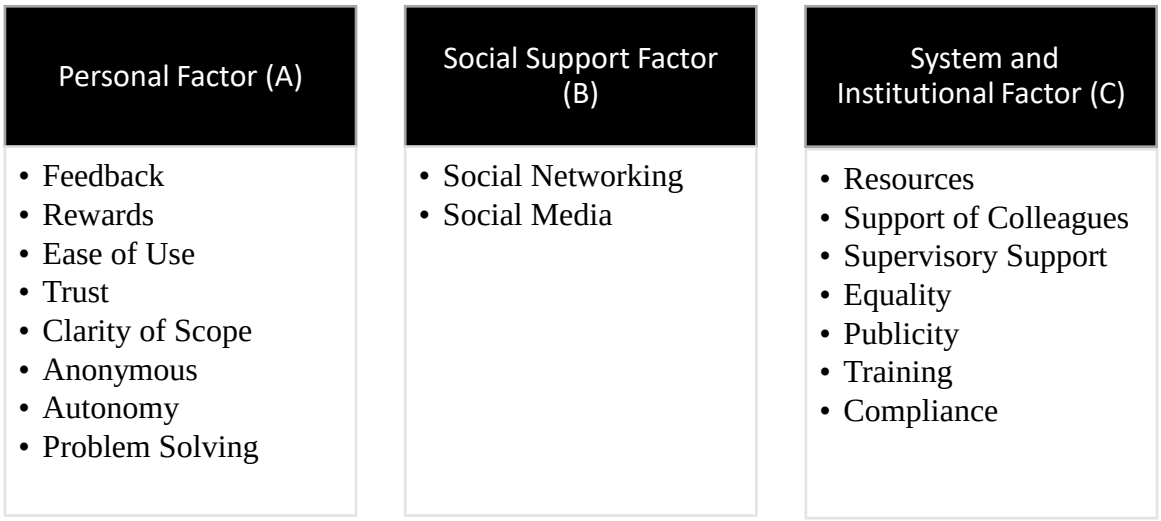

Figure 4.15 Modified Results of Factor Analysis.

4.3.2 AHP-Based Prioritisation

The researcher invited both suggestion systems experts for a third virtual session to build the pairwise comparison matrices based on the final version of the developed constructs/groups in order to conduct the Analytical Hierarchy Process (AHP).

The AHP method is used to make pairwise comparisons of the under studied factors and use relevant experts' judgment to rank these parameters on the priority scale (Saaty, 2008). It is the hierarchical structuring of the parameters based on their ranking (Scholl et al., 2005; Scholz and Decker, 2007). By using this technique, the researchers can add the importance of one parameter and attributes in relation with the importance and attribute of the other parameters (Scholl et al., 2005; Kallas et al., 2011). All these rankings and evaluations are done with the help of pairwise comparisons and presented in the hierarchical manner (Kallas et al., 2011). In order

to make this comparison, a ranking scale is used that indicates the importance and dominance of one parameter over the other. (Saaty, 2008). Table 4.18 shows the rating scale.

Table 4.18 Saaty Rating Scale (Saaty, 2008).

Intensity of Importance	Definition	Explanation
1	Equally important	Contribution of two factors are the same
3	Somewhat important	Contribution of one factor is slightly more over another
5	More important	Contribution of one factor is strongly moreover another
7	Very much important	Contribution of one factor is very strong over another
9	Absolutely important	Contribution of one factor is maximum possible over another
2.4.6.8	In between values	A compromising situation

When making pairwise analysis with the help of AHP, the respondents and the decision-makers are given only the English version, which is presented in terms of relative importance between various factors. The objective is to avoid bias while estimating the weights and making the pairwise comparison (Holder, 1990). Therefore, in the present research, a specific questionnaire was designed based on the inputs of AHP experts to measure the importance of different parameters with the help of a rating scale from 1 – 9 as shown in Table 4.8 above.

With the help of AHP, the importance of individual factors along with relative importance, is identified. Once the importance was identified, the maturity level of each factor of a given suggestion system. The overall maturity of the suggestion system would be calculated after the case study.

Both suggestion system administrators were asked to compare all possible combinations of each two factors/variables and then agree on their level of

importance based on the previously lustrated rating scale.

Table 4.19 shows the results of AHP analysis for a personal factor. The consistency ratio is 0.08, which is < 0.1; therefore, the judgements for personal factor was consistent.

Table 4.19 AHP Results for Personal Factor.

Variable	Feedback	Reward	Ease of Use	Trust	Clear Scope	Anonymous	Autonomy	Problem Solving	EV	CR
Feedback	**1.00**	0.17	0.20	0.17	0.17	0.20	0.20	0.50	0.03	8%
Reward	6.00	**1.00**	6.00	4.00	7.00	4.00	2.00	3.00	0.35	
Ease of Use	5.00	0.17	**1.00**	1.00	2.00	1.00	1.00	4.00	0.13	
Trust	6.00	0.25	1.00	**1.00**	1.00	2.00	1.00	1.00	0.11	
Clear Scope	6.00	0.14	0.50	1.00	**1.00**	3.00	1.00	2.00	0.12	
Anonymous	5.00	0.25	1.00	0.50	0.33	**1.00**	0.50	2.00	0.08	
Autonomy	5.00	0.50	1.00	1.00	1.00	2.00	**1.00**	1.00	0.12	
Problem solving	2.00	0.33	0.25	1.00	0.50	0.50	1.00	**1.00**	0.07	

Given the values in the Eigenvector column of Table 4.19, the importance level is described starting from most significant to least significant. Consequently, the researcher assigned a score to each of these variables, as shown in Table 4.20.

Table 4.20 Importance Rating and Scores for Personal Factor.

Variable	Importance Rank	Score
Reward	1	8
Ease of Use	2	7
Clear Scope	3	6
Autonomy	4	5
Trust	5	4
Anonymous	6	3
Problem solving	7	2
Feedback	8	1

Table 4.21 depicts the results of AHP analysis for system and institutional factor.

The consistency ratio is 0.09; which is < 0.1; hence, the judgments for system and institutional factor was consistent.

Table 4.21 AHP Results for System and Institutional Factor.

Variable	**Resources**	**Colleague Support**	**Supervisor Support**	**Equality**	**Publicity**	**Training**	**Compliance**	**EV**	**CR**
Resources	**1.00**	3.00	2.00	5.00	6.00	5.00	2.00	0.33	9%
Colleague Support	0.33	**1.00**	0.50	0.50	1.00	0.50	1.00	0.08	
Supervisor Support	0.50	2.00	**1.00**	5.00	5.00	3.00	3.00	0.24	
Equality	0.20	2.00	0.20	**1.00**	0.50	0.20	1.00	0.07	
Publicity	0.17	1.00	0.20	2.00	**1.00**	1.00	2.00	0.09	
Training	0.20	2.00	0.33	5.00	1.00	**1.00**	2.00	0.13	
Compliance	0.50	1.00	0.33	1.00	0.50	0.50	**1.00**	0.08	

Given the values in the Eigenvector column of Table 4.21, the level of importance from most important to least important and consequently, the researcher assigned score to each of these variables as shown in Table 4.22.

Table 4.22 Importance Rating and Scores for System and Institutional Factors.

Variable	Importance Rank	Score
Resources	1	7
Supervisor Support	2	6
Training	3	5
Publicity	4	4
Colleague Support	5	3
Compliance	6	2
Equality	7	1

Table 4.23 depicts the results of AHP analysis for the social support factor. The consistency ratio is 0.03, which is < 0.1; thus, the judgments for social support factor was consistent.

Table 4.23 AHP Results for Social Support Factor.

Variable	Social Networking	Social Media	EV	CR
Social Networking	**1.00**	0.20	0.17	3%
Social Media	5.00	**1.00**	**0.83**	

Given the values in the Eigenvector column of Table 4.23, the level of importance from most important to least important and consequently, the researcher assigned score to each of these variables as shown in Table 4.24.

Table 4.24 Importance Rating and Scores for Social Support Factor.

Variable	Importance Rank	Score
Social Media	1	2
Social Networking	2	1

Table 4.25 depicts the results of AHP analysis for overall factors. The consistency ratio is 0.05 which is < 0.1. Therefore, the judgments for the overall factors were consistent.

Table 4.25 AHP Results for Overall Factors.

Latent Factor	Personal	System and Institutional	Social Support	EV	CR
Personal	**1.00**	2.00	3.00	0.52	5%
System and Institutional	0.50	**1.00**	3.00	0.33	
Social Support	0.33	0.33	**1.00**	**0.14**	

Given the values in the Eigenvector column of Table 4.25, the level of importance from most important to least important and consequently, the researcher assigned score to each of these factors as shown in Table 4.26.

Table 4.26 Importance Rating and Scores for Overall Factor.

Variable	Importance Rank	Score
Personal	1	3
System and Institutional	2	2
Social Support	3	1

In the case studies presented in this thesis, the first step after the identification of maturity stages for different variables would be to calculate the maturity stage of that factor. The maturity stage will be calculated based on the following formula:

Maturity Score of the Factor = ∑(Maturity Stage of variable X Weight)/ [∑(Weights)].

On the other hand, the overall usability maturity will be calculated using the following formula:

Overall usability maturity = ∑(Maturity Score of Factor X Weight)/ [∑(Weights)]

The overall maturity stages can be calculated for any suggestion system through these formulas.

4.3.3 Maturity Model

Once the results of factor analysis were modified, and the AHP was applied to identify the most critical factors, the researcher developed a detailed maturity model. In this regard, an initial maturity model was developed based upon literature review and researchers own study experiences. The initial model is presented in Appendix D. In the next stage, further deliberations were held with the relevant experts in the healthcare sector to refine the further maturity model. The refined maturity model is presented below.

Table 4.27 The Refined Maturity Model (Personal Factor).

Success Factor	Low The healthcare facility has no clear direction	Medium Implemented in a healthcare facility but neither monitored nor followed up by top management	High Top management in a healthcare facility has active involvement and regular follow-up
1. Feedback	The Healthcare facility feedback is not time accurate, and they have no fixed format of reply back. In some cases, the system is available but not activated, plus there is no response.	The Healthcare facility has accurate feedback with fixed format and timing. However, the person-in-charge the feedback system does not use these forms very often to cover the details and not replying at the right time.	The Healthcare facility has a fixed and timely feedback with a frequent use. The top management ensures the regular follow up schedule to examine the feedback process. The person who is responsible for the feedback is committed to a fixed form and replying at the right time with a set calendar. The evaluation criteria of the feedback policy are regularly revised based on the developed strategy of healthcare as needed. The reviewers receive information occasionally from top management on changing priorities of the healthcare facility. Moreover, there are circumstances when senior management can also consider appeals against the feedback. There is an appealing process in case of dissatisfaction regarding the suggestion evaluation, in which the suggestion is re-evaluated again under the supervision of senior management.
2. Reward	The Healthcare facility does not offer any additional rewards and the facility believes that the basic salary is enough for employees.	The Healthcare facility offers limited range of rewards, but without a long-range strategic vision. Moreover, the reward scheme is neither completely transparent nor it is applied with fill fairness. However, the facility is trying to develop a more robust and fair reward system.	The Healthcare facility has a transparent reward system and policy, in which a wide range of rewards are professionally distributed to employees with a strategic vision. The top administration has a transparent scheme for employees, which is regularly updated on a yearly basis. The top administration regularly revises their rewards, and this increase or decrease is

			done depending upon the updated strategies of the healthcare facility. However, these rewards can be either tangible or non-tangible. In this regard, innovative suggestions are publicised through email, billboard or they are entered in competitions being organised by professional organisations. They do this exercise to benchmark suggestions coming from various healthcare facilities.
3. Ease of Use	The Healthcare facility does not provide any suggestion platforms or formalised systems. Occasionally, employees are asked to submit their suggestions with the help of paper sheets or emails. However, during this process, they are not provided any kind of guidelines, feedback or rewards to ensure its successful implementation. As a result, employees not only develop frustration but also lose their time.	The Healthcare facility provides the suggestion platforms and formalised systems to everyone. However, the person-in-charge is either unavailable or not responding to the queries, due to which frustration is developed among the employees. Employees have access to the system and know how to submit an idea at the right time and in the right format. Furthermore, manuals and processing guidelines are also available to them.	The Healthcare facility has clear and easy to access suggestion platforms. These systems are available to everyone with clear strategic objectives, processes and guiding manuals. A person in-charge is always available to respond to different kind of queries and questions. Top management regularly reviews the suggestion platforms to ensure their alignment with the organisations strategic vision. The purpose of refining these processes is to attract more ideas meeting the strategic goals of the healthcare facility. Furthermore, the top management regularly sends feedback surveys to check the satisfaction level of employees from these systems.
4. Trust	Trust is available in the healthcare suggestion platforms, but no formal systems, policy or code of ethics are there. Top management is not giving sufficient guarantees to protect employee's rights in the backdrop of submitted ideas and suggestions. The	Trust is available in the healthcare suggestion platforms with formal systems, policy or code of ethics in place. No formal agreements are available between the healthcare facility and the employees, ensuring their protection from any adverse consequences. The	Trust is available in the healthcare suggestion platforms with formal systems, policy and code of ethics in place. Formal agreements are available between the healthcare facility and the employees, ensuring their protection from any adverse consequences. The health care facility highly considers the code of ethics and apply it to their employees. The management offers

	trust deficit is there due to frequent changes in the suggestion platforms besides targeting employees for any particular idea.	system respects the code of ethics, besides having less frequent changes from time to time. Top management guarantees its employees to be safe from reviewed outcomes and suggestion implementation.	guarantees and reinforces the safety of their employees through social events, emails, billboard and social media. The management works hard to build trust in the scheme and encourage their employees to have active participation. The top management also consults their employees about changes being made in the system. In addition, the management also gives employees the right to appeal against any mistreatment or victimisation for their ideas.
5. Clear Scope	The scope of the healthcare suggestion platforms is not clearly specified with no timeline. Also, there is no guideline about the constitution of acceptable suggestions/ideas.	Partially clear guidelines for the scope of healthcare suggestion platforms. The guidelines clearly state what to accept and how to implement, in case if the suggestions are feasible. However, the timeline is occasionally specified with abstract evaluation criteria.	The Healthcare facility has clear guidelines for the scope and kind of needed suggestions. The guidelines clearly state what to accept and how to implement a specified timeline and evaluation criteria. Annual survey for employee's feedback is conducted to improve the clarity further. Top management also seeks the help of external consultants to benchmark the suggestion system in light of other healthcare facilities.
6. Anonymity	Healthcare suggestion platforms lack anonymity. The suggestion or the idea is under the control of the supervisor/ management, who usually decides to accept or reject the ideas without adopting any formal procedure. Moreover, the privacy of the process is also nor ensured. Evaluation process lacks anonymity, and the evaluators exactly	Anonymity is occasionally embedded in the healthcare suggestion platforms system. The ideas are directly sent to the supervisor or management. The procedure is straightforward but does not provide sufficient security to employee's identity. Although, the evaluation process is anonymous; however, the supervisor has access to see the	Anonymity is formally embedded in the healthcare suggestion platforms system by the top management. A straightforward procedure is adopted to protect employee identity. Moreover, the employees are regularly reminded during periodic meetings that their suggestions are treated anonymously. The identity of the submitter is anonymous from the supervisor. However, the central administrator has access to see the submitter's identity, but not

	know, who is sending these suggestions.	identity of the submitter.	allowed to disclose the names to anyone.
7. Autonomy	The healthcare facility does not have an autonomous policy. Employees have no freedom to participate in healthcare suggestion platforms without consulting their supervisors. No direct channels are available for employees to give their ideas or suggestions. Meanwhile, some supervisors need consultation while others do not.	The healthcare facility has a partial autonomous policy. Employees have partial freedom to participate in the suggestion system without consulting their supervisors. The employees have less autonomy to consult or skip the supervisor based on the situation. Moreover, different channels are available for employees to participate in the scheme.	The healthcare facility has a formal autonomous policy. Employees have the complete freedom to participate in the suggestion system without consulting their supervisors. Autonomy policy is available and encouraged by the healthcare top management through different channels emails, billboards and website. The employees have more autonomy to consult or skip the supervisor based on the situation. Employees have the right to communicate with senior management if they have any obstacles with the submitting ideas, evaluation, feedback or rewards.
8. Problem Solving	Problems are not clearly defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees do not have the flexibility, time and chance to brainstorm the solutions. Top management does not encourage the employees to participate in solving healthcare facility issues.	Problems are occasionally defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees have the partial flexibility, time and chance to brainstorm the solutions. Top management occasionally encourages the employees to participate in providing cost-effective healthcare facility issues.	Problems are clearly stated to receive suggestions in the health care suggestion platforms. The top management challenges employee's creativity for their active participation in problem-solving. Furthermore, timely and cost-effective suggestions are also encouraged. The employees show creativity in finding effective and efficient solutions. The management periodically revises the ongoing changes to ensure the efficiency of the suggestion platforms.

Table 4.28 The Refined Maturity Model (System and Institutional Factor).

Success Factor	Low The healthcare facility has no clear direction	Medium Implemented in a healthcare facility but neither monitored nor followed up by top management	High Top management in a healthcare facility has active involvement and regular follow-up
1. Resources	The resources assigned for the suggestion system are minimal. The allocation of resources is rarely based on healthcare facility resources and culture. All suggestions are analysed, and feedback is locally taken in the facility. There is no formal department with dedicated staff to manage the operations of the health care facility suggestion platform.	The resources for the suggestion system are occasionally available on ad-hoc basis depending on the healthcare facility resources and culture. The top management of the healthcare facility assigns sporadic resources with no monitoring and follow up. There is a department in charge of the suggestion platform, which is partially responsible for providing the required resources to manage the suggestion process from submission till feedback.	The resources assigned for the suggestion system are formally structured and well in place. The top management allocated necessary resources and needed budget to manage the suggestion system, rewards, recognition, training and other related activities. The department in charge of the health care suggestion platform has a separate budget that allows employees to charge for their time spent on formulating, refining and submitting suggestions. Regular and periodical reviews and adjustments are made about the needed resources for the suggestion system.
2. Colleague Support	Colleagues are rarely supporting each other and that too in their personal capacity with no formal process available in the healthcare facility. Furthermore, no process of employees training is available to assist each other in providing the right kind of suggestions or feedback. Employees are not informed about the expectations or update of any change in the management policy.	Colleagues are occasionally supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. Non-formal training process is available to encourage employees on how to help their colleagues in the generation of ideas. Employees are occasionally informed about the expectations or update of any change in the management policy.	Colleagues are regularly supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. The top management also encourages their employees to generate new ideas with the support of their colleagues. Furthermore, events are also organised for the development of support culture within the healthcare facility. Sufficient budget and necessary training are available for employees to support their colleagues in the generation of ideas. Employees are always informed about their expectations or update of

			any change in the management policy.
3. Supervisor Support	Supervisors are not encouraging their employees in healthcare suggestion platforms to generate new suggestions or ideas. They do not give sufficient time to their employees for necessary improvements in the development of their skills. The supervisor support is either not available to respond to new ideas or rarely happen without any formal policies or regulations.	Supervisors are occasionally encouraging their employees in the healthcare suggestion platforms to generate new suggestions or ideas. They occasionally give time to their employees for necessary improvements in the development of their skills. The supervisor is occasionally available to responds to new ideas. There is a non-formal training budget and opportunities available to encourage supervisors to support their employees.	Supervisors are always encouraging their employees in the healthcare suggestion platforms to generate new suggestions or ideas. The top management of the healthcare facility regularly motivates their supervisors to encourage employees by giving sufficient time to brainstorm and formulate their ideas. Formal training sessions are scheduled with concerned supervisors to have either one to one or group discussions for the generation of new ideas. There is a formal training budget and opportunities available to encourage supervisors to support their employees. The supervisor efficiently uses their time with employees and develop self-confidence mong them to create new ideas.
4. Equality	There is no formal equality policy available in the healthcare facility suggestion platforms. In the regard, the facility operates on its own norms with no written policy for equity. The employees can participate, but still, there is discrimination among them based on their gender, nationality etc. The management/supervisor controls the whole process. There is no transparent equity system for the protection of employees or giving	There is an irregular equality policy available in the healthcare facility suggestion platforms. It ensures that workers will be protected from any adverse consequences if they do or don't submit any suggestion. The top management tries to develop a system, which guarantees its employees to have their voice. Furthermore, it gives them the chance to participate and provide the right of equal feedback from	There is a formal/regular equality policy available in the healthcare facility suggestion platforms. Moreover, the top management in the healthcare facility assures that the equality policy should be uniformly applied. The policy is available to everyone in the healthcare intranet system with no option of auto rejection without formal evaluation of the suggestion. The management guarantees and reinforces a belief among its employees that they would be treated equally. Furthermore, the trust in the system is reinforced by announcing the equity policy to

	them the right to revise their feedback about the suggestion system.	the suggestion system.	everyone through social events, emails, billboard and social media. The management works hard to build an equity environment that encourages its employees to freely participate in the suggestion systems. Besides, it also gives them the right to appeal if any employee is treated unfairly or being victimised for their ideas.
5. Publicity	Publicity to acquire new suggestions/ ideas in the healthcare facility rarely happens with no set pattern or plans. The healthcare facility does not invest in any form of publicity for the suggestion systems. It all depends on employees own will to participate or not. There is no allocated budget or other resources available for that.	Publicity to acquire new suggestions/ ideas in the healthcare facility occasionally happens with temporary patterns or plans. The healthcare facility occasionally invests in publicising posters and other social media accounts. Furthermore, internal emails are also available to promote the suggestion system platforms. There is partial allocation of budget or other resources available for necessary publicity.	Publicity to acquire new suggestions/ ideas in the healthcare facility regularly happens with properly structured patterns or plans. Posters, internal emails, billboards and newsletters are regularly available to promote success stories of the suggestion schemes. There is a proper allocation of budget for publicising, training, rewarding and event organising. The top management encourages those employees who participate in the generation and submission of new ideas by announcing their names through emails or in the newsletters.
6. Training	The training programme in the healthcare facility is not available. There is no budget to train employees to use the suggestion system. Furthermore, no information and awareness events are organised. No training program is available for the guidance of workers to participate in the generation of new ideas.	The training programme in the healthcare facility is occasionally available. There is a sporadic budget available to train employees for the use of the suggestion platforms. The partial training programme is available in the healthcare facility for the use of the suggestion platforms. Employees are occasionally encouraged to join the training programme.	The training programme in the healthcare facility is regularly available. There is a proper budget available to train employees for the use of the suggestion platforms. Employees are motivated through the healthcare facility policy, which encourages them to participate in the training programs. In this regard, the facilitation is given to employees by giving them various incentives, including regular time offs. Training is provided with the help of internal and external consultants/experts to share their success stories.

		However, the training programme is limited to just filling and submission of forms.	Besides, opportunities are also provided to learn best practices from other organisations with the help of events that are organised by professional bodies on suggestion systems.
7.Compliance	Cultural values and norms are partially clear in the healthcare facility, but the code of conduct/ ethics are not adopted in the system, due to which, employee suggestions are not in compliance with the socio-cultural values and not supportive to the suggestion platforms. Therefore, the submitted suggestions/ ideas are mostly rejected due to their collision with personal, cultural and religious values.	Cultural values and norms are properly clear in the healthcare facility, but the code of conduct/ ethics are partially adopted in the system. Due to which, employee suggestions come in partial compliance with the socio-cultural values and partially supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are less rejected due to their partial collision with personal, cultural and religious values.	Cultural values and norms are properly clear in the healthcare facility. Also, the code of conduct/ethics are fully adopted in the system. As a result, employee suggestions come in complete compliance with the socio-cultural values and fully supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are not rejected due to their compliance with personal, cultural and religious values. The top management in the healthcare facility assures that the code of conduct should be available and clear to all employees. Regular reminders and announcement are sent to employees through billboards, social media, email and other communication channels. Besides, the top management regularly reviews the code of conduct to guarantee its compliance and ensure its applicability.

Table 4.29 The Refined Maturity Model (Social Support Factor).

Success Factor	Low The healthcare facility has no clear direction	Medium Implemented in a healthcare facility but neither monitored nor followed up by top management	High Top management in a healthcare facility has active involvement and regular follow-up
1. Social Media	Social media is partially available in the healthcare facility with no consistency or planned system to benefit from it. The system is not considering or responding to social media as a suggestion refinement tool. Most of the employees have either no or partial access to social media to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with partial consistency or planned system to benefit from it. The system is sporadically considering or responding to social media as a suggestion refinement tool. Most of the employees have partial access to social media through different web platforms to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with complete consistency or planned system to benefit from it. The system is formally considering or responding to social media as a suggestion refinement tool. Most of the employees have complete access to social media through different web platforms to share their ideas or receive messages from concerned stakeholders. The top management in the healthcare facility encourages its employees to use social media and other web platforms to conduct useful discussions, get updates on changing strategies, setting new targets or goals. Furthermore, necessary training and resources are provided to those employees, who either have no access to computers or not familiar with the required social media tools.
2. Social Networking	Social networking is not available in the healthcare facility, and, social events are not organised. Due to which the success stories and new ideas are not shared among employees. The facility does not arrange formal/ informal gatherings to exchange and discuss ideas.	Social networking is occasionally available in the healthcare facility, and social events are sporadically organised. Due to which the success stories and new ideas are partially shared among employees. The facility irregularly arranges formal/ informal gatherings to exchange and discuss ideas.	Social networking is formally available in the healthcare facility, and social events are regularly organised. Due to which the success stories and new ideas are always shared among employees. The facility regularly arranges formal/ informal gatherings to exchange and discuss new ideas. The top management in the healthcare facility encourages online socialising through chat rooms and blogs between

			employees, management and senior officers. Also, regular organising of social events takes place among healthcare employees, where discussions are conducted on changing strategies and new ideas. Top management ensures that all level of employees should participate regardless of their access to computers or familiarity with social networking e-tools. The management believes that these investment not only enrich employees experience for the generation of new ideas but also impact the performance of suggestion system in a positive way.

The consolidated refined maturity model is given in Appendix E. The following two chapters explore two case studies in two Saudi healthcare facilities. These chapters test and validate the developed assessment model and demonstrate how the suggested model could propose improvement opportunities and recommendations.

Chapter 5 : Case Study A

5.1 Introduction

Organisation A is a private hospital established in 2006 in Jeddah City by the late King Abdullah bin Abdulaziz (the Custodian of the Two Holy Mosques) and the late Crown Prince Sultan bin Abdulaziz after having gone through over ten years of extensive planning and training. The hospital is a world-class medical centre with multiple facilities and centres that cater to a broad range of health-related complications. To ensure high standards and state of the art services to health care seekers, more than one hundred fifty highly trained and certified doctors from medically advanced countries such as Europe, Canada and the USA take care of patients in the area of children care, women care, oncology, cardiology and orthopaedics. These specialised doctors are supported by more than 2500 staff members ranging from nursing staff to logistics staff. Due to the availability of highly sophisticated healthcare equipment, the hospital is considered one of the most recognised hospitals in the entire region. This hospital's objective is to create an ideal patient care environment and offer professional health care services to patients.

5.2 Personal Factor

The following sub-sections describe the variables regarding the personal factor for the suggestion system of Hospital A.

5.2.1 Feedback

The feedback at the hospital follows no specific structure. There is no automated feedback system and even no feedback forms. Further, there is no specific timeframe for feedback. The Chief Experience Officer or the Manager of Performance Improvement in the Information Technology Department generally work on the assessment of new ideas and present them to the suggestion system committee. On a monthly basis, the suggestion system committee screens the ideas according to an unclear priority-based system. The ideas which are approved by the committee are referred to the concerned departments or committees for execution and ideas that need to undergo performance improvement, are referred to the Performance Improvement Subcommittee (PISC). Approved ideas are tracked by the suggestion system. Approved projects are tracked by PISC. The employee who initiates the suggestion is sent a “Thank You” letter, whereas employees whose suggestions are rejected receive no clear feedback. There is a feedback format on just the approved suggestions. There is no training programme for evaluators. This case will be rated at the medium level (Table 5.1).

Table 5.1 Classification of Hospital A on Feedback.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Feedback	The Healthcare facility feedback is not time accurate, and they have no fixed format of reply back. In some cases, the system is	The Healthcare facility has accurate feedback with fixed format and timing. However, the person-in-charge the feedback system does not use these forms very	The Healthcare facility has a fixed and timely feedback with a frequent use. The top management ensures the regular follow up schedule to examine the

	available but not activated, plus there is no response.	often to cover the details and not replying at the right time.	feedback process. The person who is responsible for the feedback is committed to a fixed form and replying at the right time with a set calendar. The evaluation criteria of the feedback policy are regularly revised based on the developed strategy of healthcare as needed. The reviewers receive information occasionally from top management on changing priorities of the healthcare facility. Moreover, there are circumstances when senior management can also consider appeals against the feedback. There is an appealing process in case of dissatisfaction regarding the suggestion evaluation, in which the suggestion is re-evaluated again under the supervision of senior management.

5.2.2 Reward

There is a fixed rubric for evaluating the reward system. Every month, the suggestion system (Ideas Bank) committee screens the ideas, classifies them according to contribution to strategy, cost-saving, resource requirements, and execution risk. The ideas which are approved by the committee are referred to the concerned departments or committees for execution and for tracking by the Performance Improvement subcommittee. An appreciation award in the form of a custom hospital logo pin is given to the employees who initiate the approved suggestions. The employees who propose accepted suggestions get recognition and are mentioned in the monthly public forum. There is no variety of rewards and

recognitions. The practices at the moment with regards to rewards are Medium (Table 5.2).

Table 5.2 Classification of Hospital A on Reward.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Reward	The Healthcare facility does not offer any additional rewards and the facility believes that the basic salary is enough for employees.	The Healthcare facility offers limited range of rewards, but without a long-range strategic vision. Moreover, the reward scheme is neither completely transparent nor it is applied with fill fairness. However, the facility is trying to develop a more robust and fair reward system.	The Healthcare facility has a transparent reward system and policy, in which a wide range of rewards are professionally distributed to employees with a strategic vision. The top administration has a transparent scheme for employees, which is regularly updated on a yearly basis. The top administration regularly revises their rewards, and this increase or decrease is done depending upon the updated strategies of the healthcare facility. However, these rewards can be either tangible or non-tangible. In this regard, innovative suggestions are publicised through email, billboard or they are entered in competitions being organised by professional organisations. They do this exercise to benchmark suggestions coming from various healthcare facilities.

5.2.3 Ease of Use

The suggestion system in Hospital A has been established under the name of Ideas Bank in the Hospital. It went through a process of change and adjustment till it reached where it currently is. A suggestion system is a place for sharing thoughts or ideas as to a possible course of action that will enhance and advance

collaborative practice. It first promotes and integrates the concepts of creativity in Hospital A's various policies, systems and processes. Secondly, it encourages staff to put forward ideas and suggestions and creates a platform for the acceleration of developing new services that meet and exceed the expectations of patients. Lastly, with the help of support development activities, and the quick advances in modern technology, the human resource department of Hospital A has gained knowledge and experience to contribute towards creativity and innovation. The suggestion system is under the Patient Experience Division, which is part of the Information Technology Department headed by the Chief Experience Officer. The Ideas Bank is available through the intranet of the Hospital, and any employee can offer a suggestion and can even discuss the suggestion with other colleagues through the same platform. The electronic suggestion system has its own policy and procedures. The intranet ideas bank uses a simple form which asks for employee name, email, password, and idea title and idea description. The form is only available internally on the website (just for hospital employees). Many labours do not have access to computers. The cleaning, maintenance and other low-paid support staff also do not have access to the intranet and cannot submit suggestions. Therefore, there are manual suggestion boxes for them and for the patients at the same time. So, the system is well organised and planned for by top management. The system has been around since the first year of the Hospital. It was developed by following standards of other international hospitals. The system is revised through the regular updating of policies; senior management has sought the views of employees on their assessment and opinion of the suggestion system. Given this fact, the suggestion system for Hospital A was rated as High level or level 3 (Table 5.3).

Table 5.3 Classification of Hospital A on Ease of Use.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Ease of Use	The Healthcare facility does not provide any suggestion platforms or formalised systems. Occasionally, employees are asked to submit their suggestions with the help of paper sheets or emails. However, during this process, they are not provided any kind of guidelines, feedback or rewards to ensure its successful implementation. As a result, employees not only develop frustration but also lose their time.	The Healthcare facility provides the suggestion platforms and formalised systems to everyone. However, the person-in-charge is either unavailable or not responding to the queries, due to which frustration is developed among the employees. Employees have access to the system and know how to submit an idea at the right time and in the right format. Furthermore, manuals and processing guidelines are also available to them.	The Healthcare facility has clear and easy to access suggestion platforms. These systems are available to everyone with clear strategic objectives, processes and guiding manuals. A person in-charge is always available to respond to different kind of queries and questions. Top management regularly reviews the suggestion platforms to ensure their alignment with the organisations strategic vision. The purpose of refining these processes is to attract more ideas meeting the strategic goals of the healthcare facility. Furthermore, the top management regularly sends feedback surveys to check the satisfaction level of employees from these systems.

5.2.4 Trust

There is an assurance from the top management, and it is clearly stated in the suggestion system manual through the administrative policy that there will be no consequences resulting from employee suggestions, irrespective whether someone likes it or not. Though this step, the Hospital is trying to promote and integrate the concept of creativity. Since this assurance is published on the internet, it can be

regarded as a contract between employees and top management. Given these circumstances, this will be classified as Medium system for trust (Table 5.4).

Table 5.4 Classification of Hospital A on Trust.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Trust	Trust is available in the healthcare suggestion platforms, but no formal systems, policy or code of ethics are there. Top management is not giving sufficient guarantees to protect employee's rights in the backdrop of submitted ideas and suggestions. The trust deficit is there due to frequent changes in the suggestion platforms besides targeting employees for any particular idea.	Trust is available in the healthcare suggestion platforms with formal systems, policy or code of ethics in place. No formal agreements are available between the healthcare facility and the employees, ensuring their protection from any adverse consequences. The system respects the code of ethics, besides having less frequent changes from time to time. Top management guarantees its employees to be safe from reviewed outcomes and suggestion implementation.	Trust is available in the healthcare suggestion platforms with formal systems, policy and code of ethics in place. Formal agreements are available between the healthcare facility and the employees, ensuring their protection from any adverse consequences. The health care facility highly considers the code of ethics and apply it to their employees. The management offers guarantees and reinforces the safety of their employees through social events, emails, billboard and social media. The management works hard to build trust in the scheme and encourage their employees to have active participation. The top management also consults their employees about changes being made in the system. In addition, the management also gives employees the right to appeal against any mistreatment or victimisation for their ideas.

5.2.5 Clear Scope

After an initial review of the current suggestion system policy, it was found that the scope of the policy focuses on any improvement that enhances the service quality of the concerned department. The Chief Experience Officer informed the researcher that the remit is quite open, and they want to keep it that way with an objective of receiving a wide array of ideas. Contributed ideas should focus on developing services, improving the quality of patient care, enhancing the workplace environment, supporting caregivers with tools to achieve the daily hospital goals, introducing new methods that eliminate inefficiently or duplication of work streams and upholding the hospital ethics. All that with the ultimate goal of achieving patient satisfaction. The scope is clear and reviewed regularly. Based on this assessment, this system will be rated at High level or level 3 for clarity of scope (Table 5.5).

Table 5.5 Classification of Hospital A on Clear Scope.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Clear Scope	The scope of the healthcare suggestion platforms is not clearly specified with no timeline. Also, there is no guideline about the constitution of acceptable suggestions/ideas.	Partially clear guidelines for the scope of healthcare suggestion platforms. The guidelines clearly state what to accept and how to implement, in case if the suggestions are feasible. However, the timeline is occasionally specified with abstract evaluation criteria.	The Healthcare facility has clear guidelines for the scope and kind of needed suggestions. The guidelines clearly state what to accept and how to implement a specified timeline and evaluation criteria. Annual survey for employee's feedback is conducted to improve the clarity further. Top management also seeks the help of external consultants to benchmark the suggestion system in light of other healthcare facilities.

5.2.6 Anonymity

The employees do have the option of submitting to the system directly (Ideas Bank) and do not have to go through the supervisor. However, the review process is not anonymous. The reviewer knows the name of the employee who submitted the suggestion. Besides, the employee's name is exposed to everyone during the idea voting process. There is no appeal process in place in case the employee is not happy with the feedback. Given that the process is not anonymous, it will be classified as Low (Table 5.6).

Table 5.6 Classification of Hospital A on Anonymity.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Anonymity	Healthcare suggestion platforms lack anonymity. The suggestion or the idea is under the control of the supervisor/ management, who usually decides to accept or reject the ideas without adopting any formal procedure. Moreover, the privacy of the process is also nor ensured. Evaluation process lacks anonymity, and the evaluators exactly know, who is sending these suggestions.	Anonymity is occasionally embedded in the healthcare suggestion platforms system. The ideas are directly sent to the supervisor or management. The procedure is straightforward but does not provide sufficient security to employee's identity. Although, the evaluation process is anonymous; however, the supervisor has access to see the identity of the submitter.	Anonymity is formally embedded in the healthcare suggestion platforms system by the top management. A straightforward procedure is adopted to protect employee identity. Moreover, the employees are regularly reminded during periodic meetings that their suggestions are treated anonymously. The identity of the submitter is anonymous from the supervisor. However, the central administrator has access to see the submitter's identity, but not allowed to disclose the names to anyone.

5.2.7 Autonomy

Employees do have partial freedom while participating in the suggestion process. They can submit their ideas directly to the suggestion system (Ideas Bank). Employees are further encouraged to communicate with senior management

through the Intranet. The Chief Experience Officer is the sole point of contact for the employees who want to suggest new ideas. Therefore, this suggestion system will be classified as Medium for autonomy (Table 5.7).

Table 5.7 Classification of Hospital A on Autonomy.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Autonomy	The healthcare facility does not have an autonomous policy. Employees have no freedom to participate in healthcare suggestion platforms without consulting their supervisors. No direct channels are available for employees to give their ideas or suggestions. Meanwhile, some supervisors need consultation while others do not.	The healthcare facility has a partial autonomous policy. Employees have partial freedom to participate in the suggestion system without consulting their supervisors. The employees have less autonomy to consult or skip the supervisor based on the situation. Moreover, different channels are available for employees to participate in the scheme.	The healthcare facility has a formal autonomous policy. Employees have the complete freedom to participate in the suggestion system without consulting their supervisors. Autonomy policy is available and encouraged by the healthcare top management through different channels emails, billboards and website. The employees have more autonomy to consult or skip the supervisor based on the situation. Employees have the right to communicate with senior management if they have any obstacles with the submitting ideas, evaluation, feedback or rewards.

5.2.8 Problem Solving

The system exists with an open remit. The management has targets and goals set out when there is a problem. There is confusion and ambiguity in the top management communication process. Employees often get conflicting messages.

Sometimes they are encouraged to suggest new ideas and try to solve existing problems, and at other times they are challenged if they do get involved. Top management's pro-active involvement is not always there, yet there is occasional cooperation from employees to try to solve the problems and meet the goals. Therefore, this system will be classified as Medium for the problem-solving criteria (Table 5.8).

Table 5.8 Classification of Hospital A on Problem Solving.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Problem Solving	Problems are not clearly defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees do not have the flexibility, time and chance to brainstorm the solutions. Top management does not encourage the employees to participate in solving healthcare facility issues.	Problems are occasionally defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees have the partial flexibility, time and chance to brainstorm the solutions. Top management occasionally encourages the employees to participate in providing cost-effective healthcare facility issues.	Problems are clearly stated to receive suggestions in the health care suggestion platforms. The top management challenges employee's creativity for their active participation in problem-solving. Furthermore, timely and cost-effective suggestions are also encouraged. The employees show creativity in finding effective and efficient solutions. The management periodically revises the ongoing changes to ensure the efficiency of the suggestion platforms.

5.3 System and Institutional Factor

The following sub-sections describe the system and institutional factor with regards to the suggestion system of Hospital A.

5.3.1 Resources

The Chief Experience Officer is the single point of contact for the Ideas Bank. All the submissions come to him, and he manages the feedback and reward process by sending the screening ideas to the Ideas Bank Committee. If senior management needs any performance statistics on the suggestion system performance, they contact this individual. There is no specified minimum budget in place for this system. It solely relies on Administrative Policy; the committee uses the customised logo pins for rewards and provides no training for this suggestion system. Given all the above information, this system can be classified as Medium in the model specified (Table 5.9).

Table 5.9 Classification of Hospital A on Resources.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Resources	The resources assigned for the suggestion system are minimal. The allocation of resources is rarely based on healthcare facility resources and culture. All suggestions are analysed, and feedback is locally taken in the facility. There is no formal department with dedicated staff to manage the operations of the health care facility suggestion platform.	The resources for the suggestion system are occasionally available on ad-hoc basis depending on the healthcare facility resources and culture. The top management of the healthcare facility assigns sporadic resources with no monitoring and follow up. There is a department in charge of the suggestion platform, which is partially responsible for providing the required resources to manage the suggestion process	The resources assigned for the suggestion system are formally structured and well in place. The top management allocated necessary resources and needed budget to manage the suggestion system, rewards, recognition, training and other related activities. The department in charge of the health care suggestion platform has a separate budget that allows employees to charge for their time spent on formulating, refining and submitting suggestions. Regular and periodical reviews and adjustments are made

		from submission till feedback.	about the needed resources for the suggestion system.

5.3.2 Colleagues Support

Hospital A offers a well-defined mechanism for employees to share their ideas and support each other. The platform gives a chance for employees to share, vote and rephrase ideas among their colleagues. However, colleagues rarely support each other, and there is no formal process available in the healthcare facility. Although there are no formal training programmes, employees still talk to each other and discuss their ideas. Given that there are no traditional training programmes, this will be classified as Low (Table 5.10).

Table 5.10 Classification of Hospital A on Colleague Support.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Colleague Support	Colleagues are rarely supporting each other and that too in their personal capacity with no formal process available in the healthcare facility. Furthermore, no process of employees training is available to assist each other in providing the right kind of suggestions or feedback. Employees are not informed about the expectations or	Colleagues are occasionally supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. Non-formal training process is available to encourage employees on how to help their colleagues in the generation of ideas. Employees are occasionally informed about the expectations or update of any	Colleagues are regularly supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. The top management also encourages their employees to generate new ideas with the support of their colleagues. Furthermore, events are also organised for the development of support culture within the healthcare facility. Sufficient budget and necessary training are

	update of any change in the management policy.	change in the management policy.	available for employees to support their colleagues in the generation of ideas. Employees are always informed about their expectations or update of any change in the management policy.

5.3.3 Supervisor Support

The supervisors provide various levels of support to the suggestion system. Aiming at continuous improvement, they occasionally offer full support for their employees. During periodic and personal meetings, the supervisors encourage their subordinates to participate in the suggestion system. They give their employees random time slots for exploring new ideas and trying to implement them. Having said that, the Chief Experience Officer does not offer professional training to motivate employees; Employees are expected to be intrinsically motivated. Given the current levels of supervisory support, this will be rated as Medium (Table 5.11).

Table 5.11 Classification of Hospital A on Supervisory Support.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Supervisory Support	Supervisors are not encouraging their employees in healthcare suggestion platforms to generate new suggestions or ideas. They do not give sufficient time to their employees for necessary improvements in the development of their skills. The supervisor	Supervisors are occasionally encouraging their employees in the healthcare suggestion platforms to generate new suggestions or ideas. They occasionally give time to their employees for necessary improvements in the development of their skills. The supervisor is	Supervisors are always encouraging their employees in the healthcare suggestion platforms to generate new suggestions or ideas. The top management of the healthcare facility regularly motivates their supervisors to encourage employees by giving sufficient time to brainstorm and

	support is either not available to respond to new ideas or rarely happen without any formal policies or regulations.	occasionally available to responds to new ideas. There is a non-formal training budget and opportunities available to encourage supervisors to support their employees.	formulate their ideas. Formal training sessions are scheduled with concerned supervisors to have either one to one or group discussions for the generation of new ideas. There is a formal training budget and opportunities available to encourage supervisors to support their employees. The supervisor efficiently uses their time with employees and develop self-confidence mong them to create new ideas.

5.3.4 Equality

Top management always encourages the employees to participate in the Suggestion System (Ideas Bank). Each employee can be rewarded if the idea is screened and selected by the Ideas Bank Committee. The management works hard to encourage employees and build an environment of equity. However, there is no equity policy in place to guarantee employee rights. Therefore, this will be classified as Low on the parameter of Equity (Table 5.12).

Table 5.12 Classification of Hospital A on Equality.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Equality	There is no formal equality policy available in the healthcare facility suggestion platforms. In the regard, the facility operates on its own norms with no written	There is an irregular equality policy available in the healthcare facility suggestion platforms. It ensures that workers will be protected from any adverse	There is a formal/regular equality policy available in the healthcare facility suggestion platforms. Moreover, the top management in the healthcare facility

	policy for equity. The employees can participate, but still, there is discrimination among them based on their gender, nationality etc. The management/supervisor controls the whole process. There is no transparent equity system for the protection of employees or giving them the right to revise their feedback about the suggestion system.	consequences if they do or don't submit any suggestion. The top management tries to develop a system, which guarantees its employees to have their voice. Furthermore, it gives them the chance to participate and provide the right of equal feedback from the suggestion system.	assures that the equality policy should be uniformly applied. The policy is available to everyone in the healthcare intranet system with no option of auto rejection without formal evaluation of the suggestion. The management guarantees and reinforces a belief among its employees that they would be treated equally. Furthermore, the trust in the system is reinforced by announcing the equity policy to everyone through social events, emails, billboard and social media. The management works hard to build an equity environment that encourages its employees to freely participate in the suggestion systems. Besides, it also gives them the right to appeal if any employee is treated unfairly or being victimised for their ideas.

5.3.5 Publicity

There is a temporary pattern for advertising about the suggestion system, through emails and a public forum. The programme has posters and a coloured brochure available to advertise the system. This brochure encourages employees to share an idea. This idea then goes through a voting and brainstorming system that allows other participants to reshape and build upon the selected ideas. The ultimate aim is to develop ideas that can be implemented with both the patients' and caregivers' interest in mind. Given the kind of publicity this system has had so far, this will be classified as Medium (Table 5.13).

Table 5.13 Classification of Hospital A on Publicity.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Publicity	Publicity to acquire new suggestions/ ideas in the healthcare facility rarely happens with no set pattern or plans. The healthcare facility does not invest in any form of publicity for the suggestion systems. It all depends on employees own will to participate or not. There is no allocated budget or other resources available for that.	Publicity to acquire new suggestions/ ideas in the healthcare facility occasionally happens with temporary patterns or plans. The healthcare facility occasionally invests in publicising posters and other social media accounts. Furthermore, internal emails are also available to promote the suggestion system platforms. There is partial allocation of budget or other resources available for necessary publicity.	Publicity to acquire new suggestions/ ideas in the healthcare facility regularly happens with properly structured patterns or plans. Posters, internal emails, billboards and newsletters are regularly available to promote success stories of the suggestion schemes. There is a proper allocation of budget for publicising, training, rewarding and event organising. The top management encourages those employees who participate in the generation and submission of new ideas by announcing their names through emails or in the newsletters.

5.3.6 Training

During the study, it has been observed that no specific or general training programmes are offered to provide awareness about the suggestion system. The policy and procedure document is available on the website merely as a document to download. The management usually announces the system in their public forum; there has been an occasional mention of the suggestion system in the employee emails, but it is not done on a regular basis. The director of the system does not see

the need for training; as a result, the training is not available for everyone. Moreover, no unique resources are dedicated to the development of training material.

Similarly, no real term cases are available to be used in training programmes. There is no formal training programme, and the only information coming out is through the policy in the Intranet. Due to the lack of a formal training programme, this suggestion system will be rated at Low (Table 5.14).

Table 5.14 Classification of Hospital A on Training.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Training	The training programme in the healthcare facility is not available. There is no budget to train employees to use the suggestion system. Furthermore, no information and awareness events are organised. No training program is available for the guidance of workers to participate in the generation of new ideas.	The training programme in the healthcare facility is occasionally available. There is a sporadic budget available to train employees for the use of the suggestion platforms. The partial training programme is available in the healthcare facility for the use of the suggestion platforms. Employees are occasionally encouraged to join the training programme. However, the training programme is limited to just filling and submission of forms.	The training programme in the healthcare facility is regularly available. There is a proper budget available to train employees for the use of the suggestion platforms. Employees are motivated through the healthcare facility policy, which encourages them to participate in the training programs. In this regard, the facilitation is given to employees by giving them various incentives, including regular time offs. Training is provided with the help of internal and external consultants/experts to share their success stories. Besides, opportunities are also provided to learn best practices from other organisations with the help of events that are organised by professional bodies on suggestion systems.

5.3.7 Compliance

The Employees of Hospital A have a clear code of conduct that is signed and maintained in their respective files. The Hospital has a General Dress and Appearance Code and Role and Code of Ethics in place. This helps employees to focus their thoughts and suggest ideas that abide by the organisational code of conduct. This compliance setting results in higher efficiency for the organisation and helps avoid any conflict. Therefore, Compliance will be classified as High (Table 5.15).

Table 5.15 Classification of Hospital A on Compliance.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Compliance	Cultural values and norms are partially clear in the healthcare facility, but the code of conduct/ ethics are not adopted in the system, due to which, employee suggestions are not in compliance with the socio-cultural values and not supportive to the suggestion platforms. Therefore, the submitted suggestions/ ideas are mostly rejected due to their collision with personal, cultural and religious values.	Cultural values and norms are properly clear in the healthcare facility, but the code of conduct/ ethics are partially adopted in the system. Due to which, employee suggestions come in partial compliance with the socio-cultural values and partially supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are less rejected due to their partial collision with personal, cultural and religious values.	Cultural values and norms are properly clear in the healthcare facility. Also, the code of conduct/ethics are fully adopted in the system. As a result, employee suggestions come in complete compliance with the socio-cultural values and fully supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are not rejected due to their compliance with personal, cultural and religious values. The top management in the healthcare facility assures that the code of conduct should be available and clear to all employees. Regular reminders and

			announcement are sent to employees through billboards, social media, email and other communication channels. Besides, the top management regularly reviews the code of conduct to guarantee its compliance and ensure its applicability.

5.4 Social Support Factor

The following sub-sections describe the social support factor for Hospital A.

5.4.1 Social Networking

Hospital A depends on the Intranet platform to share ideas and for social networking. Currently, there are occasional networking programmes that are organised to facilitate socialising. One of the issues is the lack of budget for such events. Generally, the winners are recognised at a public forum. However, participants are usually recognised in periodic and annual meetings, in addition to Twitter posts and WhatsApp messages. Therefore, this will be classified as Medium (Table 5.16).

Table 5.16 Classification of Hospital A on Social Networking.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Social Networking	Social networking is not available in the healthcare facility, and, social events are not organised.	Social networking is occasionally available in the healthcare facility, and social events are	Social networking is formally available in the healthcare facility, and social events are regularly organised. Due to which

	Due to which the success stories and new ideas are not shared among employees. The facility does not arrange formal/ informal gatherings to exchange and discuss ideas.	sporadically organised. Due to which the success stories and new ideas are partially shared among employees. The facility irregularly arranges formal/ informal gatherings to exchange and discuss ideas.	the success stories and new ideas are always shared among employees. The facility regularly arranges formal/ informal gatherings to exchange and discuss new ideas. The top management in the healthcare facility encourages online socialising through chat rooms and blogs between employees, management and senior officers. Also, regular organising of social events takes place among healthcare employees, where discussions are conducted on changing strategies and new ideas. Top management ensures that all level of employees should participate regardless of their access to computers or familiarity with social networking e-tools. The management believes that these investment not only enrich employees experience for the generation of new ideas but also impact the performance of suggestion system in a positive way.

5.4.2 Social Media

The role of social media is vital in Hospital A by using the Intranet to participate and vote for ideas. Currently, the hospital uses a Web platform to allow employees to share ideas, data, and personal messages and to socialise. The platform uses creative ideas generated by employees in the improvement and streamlining of processes and services. However, social media cannot be accessed by all employees who have no computers or are not familiar with it. The Hospital is active

and interacts on Twitter and WhatsApp. Therefore, this will be classified as Medium (Table 5.17).

Table 5.17 Classification of Hospital A on Social Media.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Social Media	Social media is partially available in the healthcare facility with no consistency or planned system to benefit from it. The system is not considering or responding to social media as a suggestion refinement tool. Most of the employees have either no or partial access to social media to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with partial consistency or planned system to benefit from it. The system is sporadically considering or responding to social media as a suggestion refinement tool. Most of the employees have partial access to social media through different web platforms to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with complete consistency or planned system to benefit from it. The system is formally considering or responding to social media as a suggestion refinement tool. Most of the employees have complete access to social media through different web platforms to share their ideas or receive messages from concerned stakeholders. The top management in the healthcare facility encourages its employees to use social media and other web platforms to conduct useful discussions, get updates on changing strategies, setting new targets or goals. Furthermore, necessary training and resources are provided to those employees, who either have no access to computers or not familiar with the required social media tools.

Table 5.18 summarises the observed maturity stages for the previously analysed healthcare facility, Case Study A (Hospital A). A second case study on a Saudi healthcare facility is investigated in the following chapter to test and validate the developed assessment model.

Table 5.18 Summary of the Observed Maturity Stages.

Latent Factor/Variable or Success Factor	Observed Maturity Stage
Personal Factor	
Feedback	Medium
Reward	Medium
Ease of Use	High
Trust	Medium
Clear Scope	High
Anonymity	Low
Autonomy	Medium
Problem Solving	Medium
System and Institutional Factor	
Resources	Medium
Colleague Support	Low
Supervisor Support	Medium
Equality	Low
Publicity	Medium
Training	Low
Compliance	High
Social Support Factor	
Social Networking	Medium
Social Media	Medium

Out of three, the calculated maturity scores for the Personal, System and Institutional, and Social Support factors are 2.28, 1.75, and 2.0, respectively. In other words, the maturity of both the first and the third factors are between Medium

and High levels, while the maturity of the second factor is between Low and Medium levels.

The overall maturity of the healthcare facility B suggestion system is 2.05, which is a medium level. More details on maturity levels calculations are given in Chapter 7 and Appendix G.

Chapter 6 : Case Study B

6.1 Introduction

Organisation B is a private hospital established in 1978 in Jeddah City by HRH Fawaz bin Abdulaziz, Prince of Makkah Region. Since then, the hospital has established itself as one of the leading healthcare facilities in Saudi Arabia. The medical services being offered in the hospital follow international standards that have been set by world-renowned medical establishments. His majesty, the late King Fahd bin Abduaziz graced the first expansion of the hospital in 1986 with a gigantic follow-up plan which supports the continuous development of new and more advanced facilities in the hospital. This plan resulted in two things. First, the hospital capacity was doubled and second, the service standards achieved new levels of excellence. The second major expansion in the hospital was done in 1999 by the late King Abdullah bin Abdulaziz, the custodian of the two Holy mosques, who was the Crown-prince at the time. He further expanded the hospital by adding two massive premises. It is noteworthy to add here that Hospital B first received the Joint Commission International accreditation in 2006 becoming the first private hospital in the Kingdom of Saudi Arabia to receive such accreditation. This accreditation remains until today. Currently, the hospital houses 3500 employees, 475 beds, 15 surgery wards, and over 400 clinics that serve both primary and tertiary care. In addition to all that, the hospital has also been accredited by the Saudi Commission for Healthcare Specialties as a training and teaching facility.

6.2 Personal Factor

The following sub-sections describe the variables with regards to the personal factor for the suggestion system of Hospital B.

6.2.1 Feedback

The suggestion system in Hospital B has been established in the last ten years. It mainly depends on patient and employee participation in the same suggestion box by filling out different kinds of forms such as (Patient Experience, Outpatient Satisfaction Survey, Inpatient Survey, and ER Satisfaction Survey). This suggestion system, as mentioned in the hospital policy, is mainly reactive and not proactive. Participants share their opinions via the website, through emails and by phone messages. The feedback is not provided on a specified or automated form. The concerned department assesses the suggestions on a general basis. The department refers back to the Institutional Review Board (IRB), and the board then provides a response based on a metric scale in a timely manner. Currently, the hospital is developing its system and working on automating its suggestion scheme. The hospital is currently applying to receive the Planetree Certification that emphasises the quality of human interactions and involvement. As clear from the above, there is no set format on feedback, no training programme for evaluators and no time limit in which to respond. Given the low nature of the feedback, this case will be rated at a low level (Table 6.1).

Table 6.1 Classification of Hospital B on Feedback.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Feedback	The Healthcare facility feedback is not time accurate, and they have no fixed format of reply back. In some cases, the system is available but not activated, plus there is no response.	The Healthcare facility has accurate feedback with fixed format and timing. However, the person-in-charge the feedback system does not use these forms very often to cover the details and not replying at the right time.	The Healthcare facility has a fixed and timely feedback with a frequent use. The top management ensures the regular follow up schedule to examine the feedback process. The person who is responsible for the feedback is committed to a fixed form and replying at the right time with a set calendar. The evaluation criteria of the feedback policy are regularly revised based on the developed strategy of healthcare as needed. The reviewers receive information occasionally from top management on changing priorities of the healthcare facility. Moreover, there are circumstances when senior management can also consider appeals against the feedback. There is an appealing process in case of dissatisfaction regarding the suggestion evaluation, in which the suggestion is re-evaluated again under the supervision of senior management.

6.2.2 Reward

In the hospital, a policy of giving rewards and recognising the contributions of employees is implemented based on each employee's performance. The objective is to build a culture, where good work is encouraged and promoted by the hospital, irrespective of rank or title. All contributions and efforts are recognised not only by respective department leaders but also by colleagues, organisational leaders, or

patients, family members and even community members. Furthermore, the long-term vision of these rewards is to attract and later retain the best possible talent in the healthcare industry. By doing this, motivation in the workplace is increased, and a culture of commitment and dedication is developed. In this way, the employees feel dedicated and motivated to offer their highest level of commitment towards their organisation and their patients.

Rewards provided to employees, teams, or departments for exceptional performance and for acknowledgement of outstanding or commendable performance may be monetary or non-monetary. This act serves to point out that the hospital recognises that performance is valuable and essential. The Reward and Recognition Team is responsible for reviewing all submitted proposals and for recommending the final candidates that meet the specific criteria presented by the president and chairman of the board. The team includes all members of the Staff Engagement Committee. Voting is as per the Terms of Reference of the committee. As can be seen from the above, there is a variety of rewards and recognitions. These practices can be rated at High (Table 6.2).

Table 6.2 Classification of Hospital B on Reward.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Reward	The Healthcare facility does not offer any additional rewards and	The Healthcare facility offers limited range of rewards, but without a long-range strategic vision. Moreover, the reward scheme is	The Healthcare facility has a transparent reward system and policy, in which a wide range of rewards are professionally distributed to employees with a strategic vision. The top

	the facility believes that the basic salary is enough for employees.	neither completely transparent nor it is applied with fill fairness. However, the facility is trying to develop a more robust and fair reward system.	administration has a transparent scheme for employees, which is regularly updated on a yearly basis. The top administration regularly revises their rewards, and this increase or decrease is done depending upon the updated strategies of the healthcare facility. However, these rewards can be either tangible or non-tangible. In this regard, innovative suggestions are publicised through email, billboard or they are entered in competitions being organised by professional organisations. They do this exercise to benchmark suggestions coming from various healthcare facilities.

6.2.3 Ease of Use

The suggestion system in Hospital B depends on patient complaints, ethical inquiry, suggestion and a compliment review process. It follows a corporate wide policy set forth by the Hospital. Suggestion boxes are available everywhere in the Hospital with different kinds of forms such as (Patient Experience, Outpatient Satisfaction Survey, Inpatient Survey, and ER Satisfaction Survey). Participants can also share their opinion/complaints via the website, through emails and phone messages. This policy has been developed in order to identify and standardise the processes through which patients' suggestions, recommendations, medical ethical enquiries and complaints are carried out; both medical and non-medical issues are received, reviewed and managed in a timely manner to regulate the processes through which potential medical and non-medical complaints are identified, investigated and worked on. This is done in order to improve patient experience and mitigate possible reputational damage to Hospital B. The suggestion system is under the Patient Experience Director. The cleaning, maintenance and other low-paid support staff also have access to the suggestions box. Therefore, there are manual suggestion

boxes for staff and patients at the same time. So, the system is well organised and planned for by the top management. The system has been around for the last ten years. It is developing gradually, yet relies more on patient feedback than on employee opinion. The system is revised through the continuous updating of policies; the latest update was in 2019. Senior management has not sought the views of employees on their assessment of the suggestion system and how they feel about it. Given this fact, the suggestion system for Hospital B was rated at Medium level or level 2 (Table 6.3).

Table 6.3 Classification of Hospital B on Ease of Use.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Ease of Use	The Healthcare facility does not provide any suggestion platforms or formalised systems. Occasionally, employees are asked to submit their suggestions with the help of paper sheets or emails. However, during this process, they are not provided any kind of guidelines, feedback or rewards to ensure its successful implementation. As a result, employees not only develop frustration but also lose their time.	The Healthcare facility provides the suggestion platforms and formalised systems to everyone. However, the person-in-charge is either unavailable or not responding to the queries, due to which frustration is developed among the employees. Employees have access to the system and know how to submit an idea at the right time and in the right format. Furthermore, manuals and processing guidelines are also available to them.	The Healthcare facility has clear and easy to access suggestion platforms. These systems are available to everyone with clear strategic objectives, processes and guiding manuals. A person in-charge is always available to respond to different kind of queries and questions. Top management regularly reviews the suggestion platforms to ensure their alignment with the organisations strategic vision. The purpose of refining these processes is to attract more ideas meeting the strategic goals of the healthcare facility. Furthermore, the top management regularly sends feedback surveys to check the satisfaction level of employees from these systems.

6.2.4 Trust

Though there is a written assurance from top management that there will be no consequences resulting from participant suggestions, irrespective of rank or title, yet no formal agreement for this assurance has been provided. Through this process, the hospital promotes and encourages talent and outstanding work ethics. Since this assurance is published on the internet and on billboard screens, it can be regarded as a contract from top management. However, there is no process of appeal included in the system for employees, yet there is one for the patients only. Given these circumstances, this will be classified as Medium for trust (Table 6.4).

Table 6.4 Classification of Hospital B on Trust.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Trust	Trust is available in the healthcare suggestion platforms, but no formal systems, policy or code of ethics are there. Top management is not giving sufficient guarantees to protect employee's rights in the backdrop of submitted ideas and suggestions. The trust deficit is there due to frequent changes in the suggestion platforms besides targeting employees for any particular idea.	Trust is available in the healthcare suggestion platforms with formal systems, policy or code of ethics in place. No formal agreements are available between the healthcare facility and the employees, ensuring their protection from any adverse consequences. The system respects the code of ethics, besides having less frequent changes from time to time. Top management guarantees its employees to be safe from reviewed outcomes and suggestion implementation.	Trust is available in the healthcare suggestion platforms with formal systems, policy and code of ethics in place. Formal agreements are available between the healthcare facility and the employees, ensuring their protection from any adverse consequences. The health care facility highly considers the code of ethics and apply it to their employees. The management offers guarantees and reinforces the safety of their employees through social events, emails, billboard and social media. The

			management works hard to build trust in the scheme and encourage their employees to have active participation. The top management also consults their employees about changes being made in the system. In addition, the management also gives employees the right to appeal against any mistreatment or victimisation for their ideas.

6.2.5 Clear Scope

During the research, it was found that the suggestion system defines the scope as a way to bring improvement in work, adding values and fostering higher work quality. Hospital B is committed to providing the best health care while maintaining excellence in customer service. The hospital Patient Experience Director informed the researcher that the remit is quite open, and they want to keep it that way to get a broad range of feedback from both patients and staff. This suggestion system mostly depends on reactive action regarding feedback/complaints rather than being proactive and providing a platform for innovation and suggestion of new ideas. The scope is partially evident in the hospital policy and is reviewed regularly. Based on this assessment, this system will be rated at Medium level or level 2 for clarity of scope (Table 6.5).

Table 6.5 Classification of Hospital B on Clear Scope.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Clear Scope	The scope of the healthcare suggestion platforms is not clearly specified with no timeline. Also, there is no guideline about the constitution of acceptable suggestions/ideas.	Partially clear guidelines for the scope of healthcare suggestion platforms. The guidelines clearly state what to accept and how to implement, in case if the suggestions are feasible. However, the timeline is occasionally specified with abstract evaluation criteria.	The Healthcare facility has clear guidelines for the scope and kind of needed suggestions. The guidelines clearly state what to accept and how to implement a specified timeline and evaluation criteria. Annual survey for employee's feedback is conducted to improve the clarity further. Top management also seeks the help of external consultants to benchmark the suggestion system in light of other healthcare facilities.

6.2.6 Anonymity

The employees do have the option of submitting to the Hospital's president directly and do not have to go through their respective supervisors. The employees are further given the option of writing their names on the forms or keeping their participation anonymous; if the participant chooses not to share his/her name, the reviewer will be unable to know the identity of the person who submitted the suggestion. There is an appeal process in place in case the participant is not happy with the feedback. Given that the process is anonymous, it will be classified as High (Table 6.6).

Table 6.6 Classification of Hospital B on Anonymity.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Anonymity	Healthcare suggestion platforms lack anonymity. The suggestion or the idea is under the control of the supervisor/ management, who usually decides to accept or reject the ideas without adopting any formal procedure. Moreover, the privacy of the process is also nor ensured. Evaluation process lacks anonymity, and the evaluators exactly know, who is sending these suggestions.	Anonymity is occasionally embedded in the healthcare suggestion platforms system. The ideas are directly sent to the supervisor or management. The procedure is straightforward but does not provide sufficient security to employee's identity. Although, the evaluation process is anonymous; however, the supervisor has access to see the identity of the submitter.	Anonymity is formally embedded in the healthcare suggestion platforms system by the top management. A straightforward procedure is adopted to protect employee identity. Moreover, the employees are regularly reminded during periodic meetings that their suggestions are treated anonymously. The identity of the submitter is anonymous from the supervisor. However, the central administrator has access to see the submitter's identity, but not allowed to disclose the names to anyone.

6.2.7 Autonomy

Employees have partial freedom to participate in the suggestion system without consulting their supervisors. They can either place it directly in the suggestion box or submit it to the person in charge. In addition to that, there is occasional encouragement for communicating with senior management, whether through emails or face to face. Therefore, this suggestion system will be classified as Medium for autonomy (Table 6.7).

Table 6.7 Classification of Hospital B on Autonomy.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Autonomy	The healthcare facility does not have an autonomous policy. Employees have no freedom to participate in healthcare suggestion platforms without consulting their supervisors. No direct channels are available for employees to give their ideas or suggestions. Meanwhile, some supervisors need consultation while others do not.	The healthcare facility has a partial autonomous policy. Employees have partial freedom to participate in the suggestion system without consulting their supervisors. The employees have less autonomy to consult or skip the supervisor based on the situation. Moreover, different channels are available for employees to participate in the scheme.	The healthcare facility has a formal autonomous policy. Employees have the complete freedom to participate in the suggestion system without consulting their supervisors. Autonomy policy is available and encouraged by the healthcare top management through different channels emails, billboards and website. The employees have more autonomy to consult or skip the supervisor based on the situation. Employees have the right to communicate with senior management if they have any obstacles with the submitting ideas, evaluation, feedback or rewards.

6.2.8 Problem Solving

The system exists with an open remit. The management sets out targets and goals when there is a problem. There is confusion and ambiguity in the top management communication process. Employees often get conflicting messages. Sometimes they are encouraged to suggest new ideas and try to solve existing problems, and at other times they are challenged if they do get involved. The reactive involvement of top management is not always there, and there is occasional cooperation from

employees to solve the problem and meet goals. Therefore, this system will be classified as Medium for the problem-solving criteria (Table 6.8).

Table 6.8 Classification of Hospital B on Problem Solving.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Problem Solving	Problems are not clearly defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees do not have the flexibility, time and chance to brainstorm the solutions. Top management does not encourage the employees to participate in solving healthcare facility issues.	Problems are occasionally defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees have the partial flexibility, time and chance to brainstorm the solutions. Top management occasionally encourages the employees to participate in providing cost-effective healthcare facility issues.	Problems are clearly stated to receive suggestions in the health care suggestion platforms. The top management challenges employee's creativity for their active participation in problem-solving. Furthermore, timely and cost-effective suggestions are also encouraged. The employees show creativity in finding effective and efficient solutions. The management periodically revises the ongoing changes to ensure the efficiency of the suggestion platforms.

6.3 System and Institutional Factor

The following sub-sections describe the system and institutional factor with regards to the suggestion system of Hospital B.

6.3.1 Resources

The Patient Experience Director is the single point of contact for this suggestion box. All the submissions come to him, and he manages to send them to the concerned

units for feedback and reward. If the concerned management members need any performance statistics on the suggestion box performance, they are expected to get in touch with the patient experience director. The hospital further employs an Employee Reward and Recognition policy; monetary or non-monetary awards are given to an employee, team or department for exceptional performance. The team is responsible for reviewing all submitted proposals and recommending to the president and chairman of the board the final candidates who meet the specific criteria, the team includes all members of the Staff Engagement Committee. Voting is as per the Terms of Reference of the Committee. Given the above information, this system can be classified as Medium in the model specified (Table 6.9).

Table 6.9 Classification of Hospital B on Resources.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Resources	The resources assigned for the suggestion system are minimal. The allocation of resources is rarely based on healthcare facility resources and culture. All suggestions are analysed, and feedback is locally taken in the facility. There is no formal department with dedicated staff to manage the operations of the health care facility suggestion platform.	The resources for the suggestion system are occasionally available on ad-hoc basis depending on the healthcare facility resources and culture. The top management of the healthcare facility assigns sporadic resources with no monitoring and follow up. There is a department in charge of the suggestion platform, which is partially responsible for providing the required resources to manage the suggestion process from submission till feedback.	The resources assigned for the suggestion system are formally structured and well in place. The top management allocated necessary resources and needed budget to manage the suggestion system, rewards, recognition, training and other related activities. The department in charge of the health care suggestion platform has a separate budget that allows employees to charge for their time spent on formulating, refining and submitting suggestions. Regular

			and periodical reviews and adjustments are made about the needed resources for the suggestion system.

6.3.2 Colleagues Support

Hospital B offers a precise mechanism for employees to share their ideas and support each other. This mechanism acknowledges individual and team contribution. The system allows staff to participate and encourages them with rewards for exceptional teamwork. There is no formal process for this mechanism. Employees from within the same department can communicate and support each other easily on a weekly and monthly basis. Although there are no formal training programmes, still employees do talk to each other and discuss their ideas. Given that there are no official training programmes, this will be classified Low (Table 6.10).

Table 6.10 Classification of Hospital B on Colleague Support.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Colleague Support	Colleagues are rarely supporting each other and that too in their personal capacity with no formal process available in the healthcare facility. Furthermore, no process of employees training is available to assist each other in providing the right kind of suggestions	Colleagues are occasionally supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. Non-formal training process is available to encourage employees on how to help their colleagues in the generation of ideas. Employees are	Colleagues are regularly supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. The top management also encourages their employees to generate new ideas with the support of their colleagues. Furthermore, events are also organised for the development of support

	or feedback. Employees are not informed about the expectations or update of any change in the management policy.	occasionally informed about the expectations or update of any change in the management policy.	culture within the healthcare facility. Sufficient budget and necessary training are available for employees to support their colleagues in the generation of ideas. Employees are always informed about their expectations or update of any change in the management policy.

6.3.3 Supervisor Support

The supervisors provide various levels of support to the suggestion system. They occasionally offer full support for their employees, aiming at continuous development and exceptional teamwork. Besides, the Planetree certification places a strong emphasis on patient, family and staff; therefore, during periodic and one-on-one meetings, the supervisors encourage their subordinates to participate by asking them to present their ideas. The supervisors give their employees random opportunities to discuss and develop ideas. However, there is no official training for motivating and encouraging employees; the system heavily depends on personal encouragement and reaction to the feedback. Given the current levels of supervisory support, this will be rated as Medium (Table 6.11).

Table 6.11 Classification of Hospital B on Supervisory Support.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Supervisory Support	Supervisors are not encouraging their employees in healthcare suggestion platforms to generate new	Supervisors are occasionally encouraging their employees in the healthcare suggestion platforms to generate	Supervisors are always encouraging their employees in the healthcare suggestion platforms to generate

	suggestions or ideas. They do not give sufficient time to their employees for necessary improvements in the development of their skills. The supervisor support is either not available to respond to new ideas or rarely happen without any formal policies or regulations.	new suggestions or ideas. They occasionally give time to their employees for necessary improvements in the development of their skills. The supervisor is occasionally available to responds to new ideas. There is a non-formal training budget and opportunities available to encourage supervisors to support their employees.	new suggestions or ideas. The top management of the healthcare facility regularly motivates their supervisors to encourage employees by giving sufficient time to brainstorm and formulate their ideas. Formal training sessions are scheduled with concerned supervisors to have either one to one or group discussions for the generation of new ideas. There is a formal training budget and opportunities available to encourage supervisors to support their employees. The supervisor efficiently uses their time with employees and develop self-confidence mong them to create new ideas.

6.3.4 Equality

The top management occasionally encourages employees to participate in the Suggestion System by sharing their ideas. Each employee may be rewarded if the proposed idea is screened and selected by the Staff Engagement Committee. The management works hard to build an environment of equity by encouraging all employees to participate. Hospital B has clear policies with regards to ethical conduct, transparency, fairness, and justice across the board. These policies include employees across all practices and involve patients, visitors, staff and all business transactions. Therefore, this will be classified as Medium, along with the parameter of Equality (Table 6.12).

Table 6.12 Classification of Hospital B on Equality.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Equality	There is no formal equality policy available in the healthcare facility suggestion platforms. In the regard, the facility operates on its own norms with no written policy for equity. The employees can participate, but still, there is discrimination among them based on their gender, nationality etc. The management/supervisor controls the whole process. There is no transparent equity system for the protection of employees or giving them the right to revise their feedback about the suggestion system.	There is an irregular equality policy available in the healthcare facility suggestion platforms. It ensures that workers will be protected from any adverse consequences if they do or don't submit any suggestion. The top management tries to develop a system, which guarantees its employees to have their voice. Furthermore, it gives them the chance to participate and provide the right of equal feedback from the suggestion system.	There is a formal/regular equality policy available in the healthcare facility suggestion platforms. Moreover, the top management in the healthcare facility assures that the equality policy should be uniformly applied. The policy is available to everyone in the healthcare intranet system with no option of auto rejection without formal evaluation of the suggestion. The management guarantees and reinforces a belief among its employees that they would be treated equally. Furthermore, the trust in the system is reinforced by announcing the equity policy to everyone through social events, emails, billboard and social media. The management works hard to build an equity environment that encourages its employees to freely participate in the suggestion systems. Besides, it also gives them the right to appeal if any employee is treated unfairly or being victimised for their ideas.

6.3.5 Publicity

There is a temporary pattern for advertising about the suggestion system, through emails, social media (Twitter and Facebook), website and hospital private channel TV screens. Meanwhile, Hospital B is starting to create a corporate newsletter that encourages employees to participate by sharing their ideas. This newsletter is also

a means for announcing rewards and recognitions. Given this kind of publicity, this system has had so far; this will be classified Medium for publicity (Table 6.13).

Table 6.13 Classification of Hospital B on Publicity.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Publicity	Publicity to acquire new suggestions/ ideas in the healthcare facility rarely happens with no set pattern or plans. The healthcare facility does not invest in any form of publicity for the suggestion systems. It all depends on employees own will to participate or not. There is no allocated budget or other resources available for that.	Publicity to acquire new suggestions/ ideas in the healthcare facility occasionally happens with temporary patterns or plans. The healthcare facility occasionally invests in publicising posters and other social media accounts. Furthermore, internal emails are also available to promote the suggestion system platforms. There is partial allocation of budget or other resources available for necessary publicity.	Publicity to acquire new suggestions/ ideas in the healthcare facility regularly happens with properly structured patterns or plans. Posters, internal emails, billboards and newsletters are regularly available to promote success stories of the suggestion schemes. There is a proper allocation of budget for publicising, training, rewarding and event organising. The top management encourages those employees who participate in the generation and submission of new ideas by announcing their names through emails or in the newsletters.

6.3.6 Training

During the research process, it has been observed that no training programmes are offered to provide awareness about the suggestion system. The management usually makes announcements about the system during the general staff meetings and other gatherings. There has been an occasional mention of the suggestion system in the employee emails, but that has not been done in a systematic nor in a

regular manner. The director of the system does not see the need for training if there is a certain level of awareness. There are no resources dedicated to developing the training material; nor are there any reports of cases that can be used in training programmes. There is no formal training programme, and the only information shared is during the meetings. Due to the lack of a formal training programme, this suggestion system will be rated at Low (Table 6.14).

Table 6.14 Classification of Hospital B on Training.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Training	The training programme in the healthcare facility is not available. There is no budget to train employees to use the suggestion system. Furthermore, no information and awareness events are organised. No training program is available for the guidance of workers to participate in the generation of new ideas.	The training programme in the healthcare facility is occasionally available. There is a sporadic budget available to train employees for the use of the suggestion platforms. The partial training programme is available in the healthcare facility for the use of the suggestion platforms. Employees are occasionally encouraged to join the training programme. However, the training programme is limited to just filling and submission of forms.	The training programme in the healthcare facility is regularly available. There is a proper budget available to train employees for the use of the suggestion platforms. Employees are motivated through the healthcare facility policy, which encourages them to participate in the training programs. In this regard, the facilitation is given to employees by giving them various incentives, including regular time offs. Training is provided with the help of internal and external consultants/experts to share their success stories. Besides, opportunities are also provided to learn best practices from other organisations with the help of events that are organised by professional bodies on suggestion systems.

6.3.7 Compliance

The Employees of Hospital B have a clear code of conduct to define and regulate the expectations for ethical behaviour and ethical practices within the Hospital. This contract is signed by the employees and is maintained in their files. Hence, it helps staff to keep their ideas and suggestions within the organisational code of conduct mandate. This compliance setting results in higher efficiency for the organisation and helps avoid any conflict. Therefore, this will be classified as High in Compliance (Table 6.15).

Table 6.15 Classification of Hospital B on Compliance.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Compliance	Cultural values and norms are partially clear in the healthcare facility, but the code of conduct/ ethics are not adopted in the system, due to which, employee suggestions are not in compliance with the socio-cultural values and not supportive to the suggestion platforms. Therefore, the submitted suggestions/ ideas are mostly rejected due to their collision with personal, cultural and religious values.	Cultural values and norms are properly clear in the healthcare facility, but the code of conduct/ ethics are partially adopted in the system. Due to which, employee suggestions come in partial compliance with the socio-cultural values and partially supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are less rejected due to their partial collision with personal, cultural and religious values.	Cultural values and norms are properly clear in the healthcare facility. Also, the code of conduct/ethics are fully adopted in the system. As a result, employee suggestions come in complete compliance with the socio-cultural values and fully supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are not rejected due to their compliance with personal, cultural and religious values. The top management in the healthcare facility assures that the code of conduct should be available and clear to all employees. Regular reminders and announcement are sent to employees through billboards, social media, email and other communication channels.

			Besides, the top management regularly reviews the code of conduct to guarantee its compliance and ensure its applicability.

6.4 Social Support Factor

The following sub-sections describe the social support factor for Hospital B.

6.4.1 Social Networking

Hospital B depends on regular staff meetings, as well as on informal gatherings which include physicians, staff and patients. Currently, there are no networking programmes that are organised to facilitate socialising and promoting new ideas. One of the issues is the lack of budget for such events. Generally, the winners are recognised in social media posts (Twitter and Facebook) and at a public function organised by The Patient Experience Department. Therefore, this will be classified as Low (Table 6.16).

Table 6.16 Classification of Hospital B on Social Networking.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Social Networking	Social networking is not available in the healthcare facility, and, social events are not organised. Due to which the success stories and new ideas are not shared among employees. The	Social networking is occasionally available in the healthcare facility, and social events are sporadically organised. Due to which the success stories and new ideas are partially shared among	Social networking is formally available in the healthcare facility, and social events are regularly organised. Due to which the success stories and new ideas are always shared among employees. The facility regularly arranges formal/ informal gatherings to exchange and discuss new ideas. The top management in

	facility does not arrange formal/ informal gatherings to exchange and discuss ideas.	employees. The facility irregularly arranges formal/ informal gatherings to exchange and discuss ideas.	the healthcare facility encourages online socialising through chat rooms and blogs between employees, management and senior officers. Also, regular organising of social events takes place among healthcare employees, where discussions are conducted on changing strategies and new ideas. Top management ensures that all level of employees should participate regardless of their access to computers or familiarity with social networking e-tools. The management believes that these investment not only enrich employees experience for the generation of new ideas but also impact the performance of suggestion system in a positive way.

6.4.2 Social Media

Social Media is developing gradually in Hospital B by facilitating an interactive website platform that allows patients and employees to share ideas, data and personal messages. The platform uses creative ideas generated by participants for the development of the facility. However, Social Media can't be accessed by all employees who have no computers or who are not familiar with it. The Hospital is active on social media, particularly on Twitter and Facebook. Therefore, this will be classified as Medium (Table 6.17).

Table 6.17 Classification of Hospital B on Social Media.

	Low The healthcare facility has no clear direction	**Medium** Implemented in a healthcare facility but neither monitored nor followed up by top management	**High** Top management in a healthcare facility has active involvement and regular follow-up
Social Media	Social media is partially available in the healthcare facility with no consistency or planned system to benefit from it. The system is not considering or responding to social media as a suggestion refinement tool. Most of the employees have either no or partial access to social media to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with partial consistency or planned system to benefit from it. The system is sporadically considering or responding to social media as a suggestion refinement tool. Most of the employees have partial access to social media through different web platforms to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with complete consistency or planned system to benefit from it. The system is formally considering or responding to social media as a suggestion refinement tool. Most of the employees have complete access to social media through different web platforms to share their ideas or receive messages from concerned stakeholders. The top management in the healthcare facility encourages its employees to use social media and other web platforms to conduct useful discussions, get updates on changing strategies, setting new targets or goals. Furthermore, necessary training and resources are provided to those employees, who either have no access to computers or not familiar with the required social media tools.

Table 6.18 summarises the observed maturity stages for the previously analysed healthcare facility, Case Study B (Hospital B).

Table 6.18 Summary of the Observed Maturity Stages.

Latent Factor/Variable or Success Factor	Observed Maturity Stage
Personal Factor	
Feedback	Low
Reward	High
Ease of Use	Medium
Trust	Medium
Clear Scope	High
Anonymity	High
Autonomy	Medium
Problem Solving	Medium
System and Institutional Factor	
Resources	Medium
Colleague Support	Low
Supervisor Support	Medium
Equality	Medium
Publicity	Medium
Training	Low
Compliance	High
Social Support Factor	
Social Networking	Low
Social Media	Medium

Out of three, the calculated maturity scores for the Personal, System and Institutional, and Social Support factors are 2.44, 1.79, and 1.33, respectively. In other words, the maturity of both the second and third factors are between Low and Medium levels, while the maturity of the first factor is between Medium and High levels.

The overall maturity of the healthcare facility B suggestion system is 2.04, which is a Medium maturity level. More details on maturity calculations are given in Chapter 7 and Appendix G.

The following chapter illustrates the evaluation and analysis of both case studies. Furthermore, improvement opportunities and recommendations are proposed.

Chapter 7 : Analysis and Results

7.1 Introduction

This chapter illustrates the results and analysis of the collected data and consists of three sections. The first section demonstrates the developed model based on the research questionnaire. The second section presents the analysis of the two case studies presented in Chapters five and six. While in the last section, concluding remarks about the model are given.

7.2 Factor Analysis Outcomes

Initially, the factor analysis showed the following four constructs or groups (Fig. 7.1).

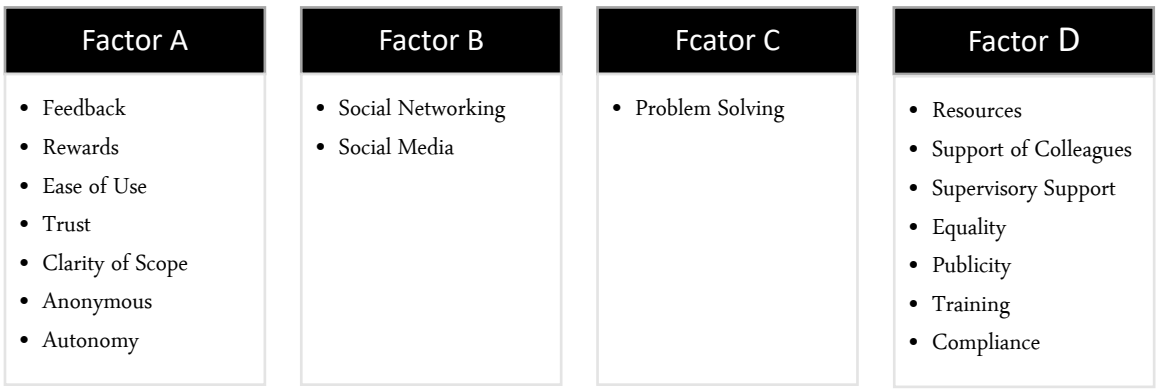

Figure 7.1 Factor Analysis Results.

Two suggestion system administrators were invited for several brainstorming sessions. The first reason for the brainstorming session was the refinement of the factor analysis data. The second reason was to refine the maturity levels. The third reason was to develop the pair-wise comparison matrices of AHP.

To further refine the results of the factor analysis, and as mentioned earlier, the

researcher invited two suggestion systems administrators to help with this research. They voluntarily agreed to help verify, refine, and validate. Both administrators were suggestion system administrators in Saudi healthcare facilities, and both of them had good years of experience in this field. A detailed briefing was given to the participants about the purpose of research before seeking their participation agreement. All of them agreed to participate in several virtual meetings on Zoom. After analysing and discussing different variables within these factors, they all came up with a joint recommendation to combine Factor A and Factor C into one factor and label it as Personal Factor. They also agreed to label Factor B as System and Institutional Factor. Finally, they recommended to label Factor D as Social Support Factor. Hence, the modified model is shown in the following figure, Fig. 7.2.

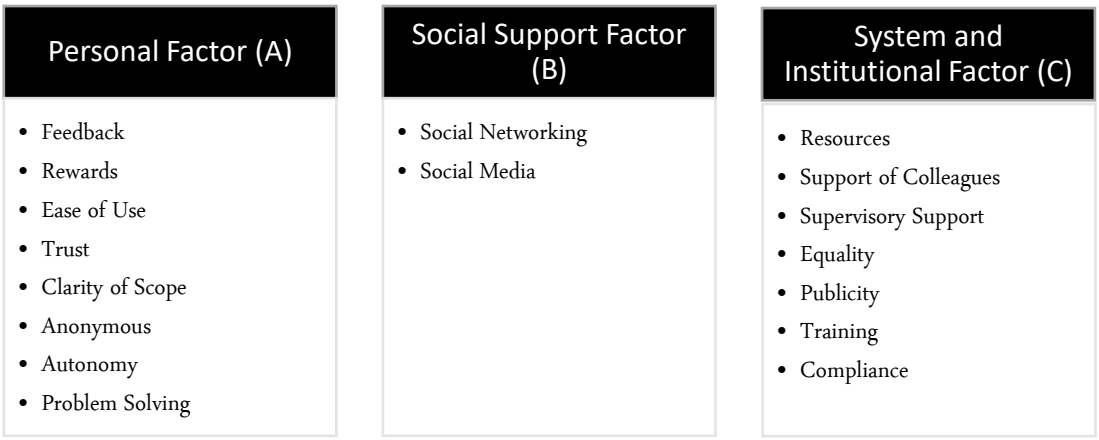

Figure 7.2 Modified Results of Factor Analysis.

Based on the experts' feedback, the model was developed and shown in Appendix D. Furthermore. The researcher invited both suggestion systems experts for a third virtual session to build the pair-wise comparison matrices based on the final model of the developed constructs/groups to proceed with the Analytical Hierarchy

Processing (AHP). The three latent factors and their associated variables are listed in Table 7.1 below ordered by their priority levels within each factor.

Table 7.1 Prioritised Factors and Variables.

Personal Factor		
Variable	**Importance Rank**	**Score**
Reward	1	8
Ease of Use	2	7
Clear Scope	3	6
Autonomy	4	5
Trust	5	4
Anonymous	6	3
Problem-solving	7	2
Feedback	8	1
System and Institutional Factor		
Resources	1	7
Supervisor Support	2	6
Training	3	5
Publicity	4	4
Colleague Support	5	3
Compliance	6	2
Equality	7	1
Social Support Factor		
Social Media	1	2
Social Networking	2	1

And the three factors arranged in order of priority is given in Table 7.2 below.

Table 7.2 Prioritised Factors.

Variable	**Importance Rank**	**Score**
Personal	1	3
System and Institutional	2	2
Social Support	3	1

In both case studies presented in this thesis, the first step after the identification of maturity stages for different variables or success factors would be to calculate the maturity stage of each latent factor. A latent factor maturity score will be calculated based on the following equation,

$$\frac{\sum_1^{n_i}(variable's\ priority\ or\ ranked\ impotance\ \times\ its\ corresponding\ observed\ maturity\ level)}{\sum_1^{n_i}(priorities)} \quad (\mathbf{1})$$

Where, n_i represents the number of variables or success factors in latent factor *(i), and i = 1 (Personal), 2 (System and Institutional), and 3 (Social Support).*

On the other hand, the overall usability maturity will be calculated using the following equation.

$$\frac{\sum_{i=1}^{3}(latent\ factor\ (i)\ priority\ or\ ranked\ impotance \times its\ corresponding\ calculated\ \ maturity\ score)}{\sum_{i=1}^{3}(latent\ factor\ (i)\ priority)} \quad (\mathbf{2})$$

An illustrative example of calculating the latent maturity score and the overall maturity score is shown in Appendix G.

7.3 Case Studies Results and Analysis

In order to test the developed model, it was applied to two case studies, A and B. The assessment for the different factors has been illustrated in Table 7.3.

Table 7.3 Comparison of Case Studies.

Latent Factor/Variable or Success Factor	Observed Maturity Stage	
	Case Study A (Hospital A)	Case Study B (Hospital B)
Personal Factor		
Feedback	Medium	Low
Reward	Medium	High
Ease of Use	High	Medium
Trust	Medium	Medium
Clear Scope	High	High
Anonymity	Low	High
Autonomy	Medium	Medium
Problem Solving	Medium	Medium
System and Institutional Factor		
Resources	Medium	Medium
Colleague Support	Low	Low
Supervisor Support	Medium	Medium
Equality	Low	Medium
Publicity	Medium	Medium
Training	Low	Low
Compliance	High	High
Social Support Factor		
Social Networking	Medium	Low
Social Media	Medium	Medium

Using the AHP analysis, a usability score for per factor per case study and an overall usability score for each investigated suggestion system is illustrated in Table 7.4.

Table 7.4 Maturity Scores.

Latent Factor	Case Study A (Hospital A)	Case Study B (Hospital B)
Personal Factor	2.28	2.44
System and Institutional Factor	1.75	1.79
Social Support Factor	2.0	1.33
The Overall Maturity Score	**2.05**	**2.04**

Therefore, Hospital A has a slightly higher overall maturity score, although Hospital B was established earlier. In terms of their suggestion systems' maturity levels, both systems are closer to the Medium level.

Hospital A slightly higher overall maturity score is mainly due to its relatively outstanding performance in the Social Support factor.

Table 7.5 lists the opportunities for improvement for both hospitals' suggestion systems, A and B. The proposed improvement plans were developed using the refined maturity model as the guiding rubric.

Table 7.5 Improvement Opportunities for Both Case Studies.

	Case Study A (Hospital A)	**Case Study B (Hospital B)**
Personal Factor		
Feedback	Available format for feedback with an opportunity to appeal.	Available format for feedback with an opportunity to appeal.
Reward	Reward-based on the return of investment and reward tangible and non-tangible. An employee who is rewarded should be announced in the newsletter.	*High*

Ease of Use	*High*	The system has to be all-inclusive by making it available for all kind of employee who has no computer. Top management needs to bring the ideas of employees and distinguish opportunities for improvement through suggestion system.
Trust	Reinforcement from top management has been more regarding trust and fairness.	Support from top management has been more regarding trust and fairness.
Clear Scope	*High*	Solicit employee feedback on the clarity of scope and achieves the issues raised in the feedback.
Anonymity	Reinforcement to make the suggestions anonymous. Top management should emphasise this through regular communication.	*High*
Autonomy	Giving them the freedom to communicate with senior management of managers from other departments if there is opinion or approval needed.	Giving them the freedom to express with senior management of managers from other departments if there is opinion or approval needed.
Problem Solving	More clear target to submit the suggestions.	More clear target to submit the suggestions.
System and Institutional Factor		
Resources	Allocate more budget for reward, recognition and training. The budget should be reviewed, revised regularly and appropriately by top management.	Allocate more budget for reward, recognition and training. The budget should be reviewed, revised regularly and appropriately by top management.
Colleague Support	Needed more training programmes to facilitate teamwork and group idea generation.	Needed more training programmes to facilitate teamwork and group idea generation.
Supervisor Support	Supervisors need to give constant encouragement to employees. It could potentially become performance criteria for the supervisor.	Supervisors need to give constant encouragement to employees. It could potentially become performance criteria for the supervisor.
Equality	No rejection to employee suggestions, management guarantee and reinforce its employees to be treated equally and trust the system by announcing to everyone through social events, sending emails, billboard and social media.	No rejection to employee suggestions, management guarantee and reinforce its employees to be treated equally and trust the system by announcing to everyone through social events, sending emails, billboard and social media.

Publicity	More publicity about the programme and its benefits. Getting a regular column in the employee newsletter. There are events organised, attended by top management where good suggestions are publicised, and individuals who submitted successful suggestions are recognised.	More publicity about the programme and its benefits. Getting a regular column in the employee newsletter. There are events organised, attended by top management where good suggestions are publicised, and individuals who submitted successful suggestions are recognised.
Training	Regular training programme on the submission and review process. Extra training programmes to promote idea generation and innovation.	Regular training programme on the submission and review process. Extra training programmes to promote idea generation and innovation.
Compliance	*High*	*High*
Social Support Factor		
Social Networking	Best Use of web 2.0 technologies. Organising formal events regularly supported by top management.	Best Use of web 2.0 technologies. Organising formal events regularly supported by top management.
Social Media	Planned system to utilising it through web 2.0 like Facebook, Twitter and other blogs between employees, management and senior officers. All kind of employee participating, especially who has no access or not familiar to computers to have the opportunity to be trained and have access to public PC's.	Planned system to utilising it through web 2.0 like Facebook, Twitter and other blogs between employees, management and senior officers. All kind of employee participating, especially who has no access or not familiar to computers to have the opportunity to be trained and have access to public PC's.

To conclude, the developed model was able to identify opportunities for improvement for any suggestion system in the Saudi healthcare sector. With any maturity model, each healthcare facility will have the option of choosing to go to the next maturity level. Choice of improving is entirely voluntary for the healthcare facility; it can choose not to go to the next level if they find the investment required to be above their budget. However, if it wants to improve, then this model can give them direction and steps to follow for improvement. With AHP, the organisation can

decide to target factors that have higher priority and improve the overall effectiveness of their suggestion system.

Finally, this chapter has provided a summary and has discussed the finding from this research. The next section documents the major conclusions of this thesis and identifies future areas of research.

In this research, a usability-based model for suggestions systems assessment was developed and can be pictorially illustrated, as shown in Fig. 7.3.

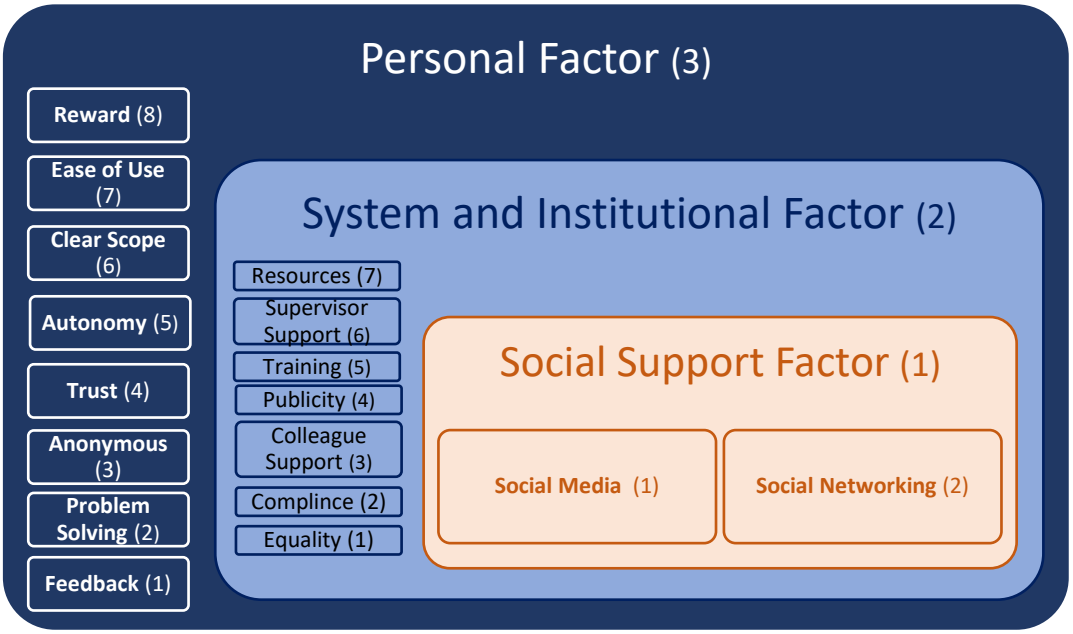

Figure 7.3 The Developed Assessment Framework.

As shown in the above figure, three significant factors affect the usability of a suggestion system, namely, the Personal factor; the System and Institutional factor, and the Social Support factor.

The first factor, the Personal one, includes the following prioritised suggestion system success variables: Rewards play an essential role in motivating the staff

members for a dynamic suggestion support system. Rewards can be both tangible and non-tangible. Although rewards are considered an essential part of the healthcare suggestion platforms, many facilities still face difficulties in allocating sufficient resources for these systems. Furthermore, to make the best usage of rewards, the policy must be transparent and institutionalised, so that the people should take part with more motivation and encouragement. Similarly, it is observed that the ease of use is crucial for the success of any healthcare suggestion platform. The design, usage and implementation of the suggestion system should be easy enough to accommodate all employees' tiers. All suggestion systems must be uniformly accessible to all employees despite their locations, roles and responsibilities. Not only, the filling of the forms should be easy enough, but the technological advancements must also be incorporated to facilitate the process of suggestions support platforms. The clarity of scope for the healthcare suggestion system is equally important because of the needed suggestions and their implementation.

Similarly, clarity of scope helps in motivating the employees about its practical usage. Besides, it also helps healthcare management filter out the receiving suggestions, evaluations, and successful implementation. Moreover, a robust suggestion system needs to provide a sufficient level of autonomy to its participants. It allows and encourages the employees to present their ideas/suggestions without any constraint of pre-defined limitations. In this regard, the healthcare facility's management should introduce those rules and policies that not only strengthens the autonomous behaviour among its employees but also facilitates its effective and efficient implementation.

Furthermore, trust in the system should be sufficient to encourage all employees' levels for their active participation. In this regard, an exact code of ethics should be provided by the management. Besides, the employees' confidence in the suggestion support platforms can be enhanced by offering a transparent and trustworthy system. In this regard, the management should ensure that participants' rights are protected in a clear and transparent manner. The anonymity of the suggestion system participants plays a crucial role in any suggestion system platform's success. It builds the confidence level of employees on the system and provides them with comprehensive job security against any biases. When the employees are given surety that their identities would remain confidential, it encourages them to offer their creative ideas/ suggestions without any fear of penalisation. With the help of practical problem-solving, healthcare facilities' management can get hold of timely and cost-effective suggestions, which help find creative and efficient solutions. The targeted suggestions are proved to be more beneficial in solving day to day operational matters, because of their specific nature instead of generalised ones.

Furthermore, problem-solving can be enhanced by encouraging the interaction of multi-disciplinary teams and blending their ideas/suggestions into composite and robust solutions. It is found that efficient and timely feedback is considered a backbone of any successful suggestion support platform. The management should ensure that timely feedback must be provided to the initiator of ideas/ suggestions regardless of their acceptance or rejection. It is further observed that in case of no or untimely feedback, the participants feel discouraged in the submission of creative inputs and stopped the offering of ideas at all.

The second factor, the System and Institutional factor prioritised its success variables in the following order: Resources play an essential role in both long term and short term success of suggestion support platforms. However, resource allocation must be sufficient to support the training, rewards, recognition, and other related activities. In this regard, the management can ensure both encouragement and motivation among the healthcare facility employees. Furthermore, the allocation of resources should not be done on a random basis. Instead, formally structured rules and policies must be established to facilitate employees' active participants in the suggestion support platforms. It is also vital for supervisors to provide necessary support in the generation of ideas/ suggestions.

Moreover, they can also facilitate them in brainstorming refined and useful suggestions by creating a conducive environment, where the participants feel encouraged to share and discuss their new ideas. It not only enhances their self-confidence but also develops the necessary skills among them to build an effective suggestion support platform. Proper training can be provided in this regard to all stakeholders, in strengthen their skills and capabilities. These training programs should be formally embedded in the healthcare facilities instead of offering them on an ad-hoc basis. Also, no discrimination should be carried out among participants while offering a different kind of training programs. The management must provide equal training opportunities to all stakeholders with internal/internal experts' help equip them well for innovative/updated trends and techniques. In this regard, the management further ensures that proper publicity and recognition should be given to those employees, who participate in these suggestion support platforms with vigour and commitment. Their success stories need to be publicised with the help

of both conventional and non-conventional platforms. Proper budgetary allocations can be done to avoid any scarcity of resources.

Furthermore, the publicity plans must be integrated and aligned with healthcare facility policies. Similarly, colleagues' unflinching support also plays a crucial role in the success of suggestion support platforms. Overall, the organisational support is mandatory to build a knowledge-sharing culture, which supports individual creativity and enhances the collective suggestion sharing activities. Different events can be planned in this regard to brainstorm and generate innovative ideas/ suggestions. However, these suggestions should be made in compliance with the overall healthcare facility culture. In this regard, the management must ensure the practical implementation of the relevant code of conducts and ethics. The alignment of suggestion support platforms with organisational socio-cultural values increase the chances of their acceptability. It also means that no discrimination should be done among the submitting participants based upon their gender, religion, nationality or ethnic groups. The successful equality policy increases the participants' trust in the suggestion platforms and motivates them to provide their creative ideas and suggestions. Furthermore, the management can also offer the right to appeal in those cases, where they are not satisfied with the rejection of the received feedback.

The third factor, the Social Support factor, prioritised Social Media first then Social Networking: It is observed that social media has become both significant and vibrant communication channel, where people communicate and share their ideas/suggestions through diversified platforms. Multiple stakeholders are involved in it, who feel more convenient to use this communication mode based on the ease

and interactive nature of these channels. The management must encourage the participants to use these social media platforms for creative and innovative suggestions. Furthermore, social networking is also considered a vital tool for the suggestion support platforms. In this regard, formal channels like social events can facilitate the participants to share and refine their ideas/suggestions. Furthermore, non-conventional means like chatrooms and blogs can also enhance the idea sharing capabilities of the healthcare facility employees by giving participants instant feedback on their shared suggestions. Any investment in social networking can positively impact the effectiveness of the suggestion system besides enhancing its overall success.

Besides, the variables within the major three factors are interrelated; an improvement in one of them can improve others. For example, when a monthly target was defined in a healthcare facility, it led to collaborating and joint submission.

Finally, it has also been concluded that developing trust and success in attracting suggestions takes time and hard work. In the first case study, the healthcare facility worked for quite some time with care and patience to build the needed trust to motivate participants to contribute. In other words, developing the culture of submitting ideas will evolve. Finally, top management support is crucial to a real suggestion system success.

Chapter 8 : Conclusions and Recommendations

8.1 Introduction

Suggestion systems are considered among the most importantly, continuous improvement mechanisms. Fairbank et al. (2003) found that the classical suggestion systems development process is subject to human behaviour that might discourage overall participation. They believe interactive and straightforward systems will encourage productive participation. Furthermore, Grant and Ashford (2008) showed that employee's creativity and positive engagement remain a crucial aspect in successful suggestion system implementation. Therefore, simplicity (usability) is considered the critical success factor in any suggestion system development and implementation process.

The overall goal of this research is to develop an assessment framework for suggestion systems in Saudi healthcare facilities. The specific objectives are as follows:

1. Identify suggestion systems success factors and their implementations and limitations.

2. Adopt a technology evaluation parameter, usability, define its fundamentals and relationship with the suggestion systems success drivers.

3. Design an assessment model.

4. Validate the developed assessment framework using selected Saudi healthcare facilities and propose improvement plans.

5. Discuss overall findings and outline future research recommendations.

The first two objectives were satisfied through the review of the literature presented in the second chapter. The literature highlighted eighteen variables that act as drivers for the suggestion system's success. To account for the technology evaluation, we adopted Nielson's definition of usability. It consists of five primary dimensions: learnability, efficiency, memorability, errors recovery, and satisfaction. A further understanding of the relationships among the suggestion system success factors and the adopted technical usability definition are investigated.

The third objective was fulfilled through Factor Analysis, then the Analytical Hierarchy Process, followed by maturity model development. A questionnaire on the eighteen variables was conducted. Based on a series of scientific analyses and brainstorming sessions with subject matter experts in the Saudi healthcare facilities, the researcher identified three significant factors that affect the usability of a healthcare suggestion system, namely, the Personal factor, the System and Institutional factor, and the Social Support factor. An Analytical Hierarchy Process (AHP) was performed to prioritise variables within each factor and among the three-factor result of AHP showed that the most critical factor is the Personal factor followed by the System and Institutional factor, and then the Social Support factor. The first factor, the Personal factor, includes the following suggestion system success variables or factors, listed in order priority, Reward, Ease of Use, Clear Scope, Autonomy, Trust, Anonymous, Problem Solving, and Feedback. Under the second factor, the System and Institutional, the success variables are Resources, Supervisor Support, Training, Publicity, Colleague Support, Compliance, and

Equality. Finally, the Social Support factor, listed variables in order, are Social Media and Social Networking. Also, a maturity model with three levels of maturity was developed. The first level was defined as low, the second level was defined as a medium level, and the third level was high.

The fourth objective was satisfied by investigating and analysing two Saudi healthcare facilities. The developed assessment framework helped assess their suggestion systems' current state and identify potential improvement opportunities. Having a prioritised list ensures that organisations can improve factors that have a higher impact on the system's overall usability. Finally, the last objective was satisfied through the conclusions and future recommendations presented in this chapter.

8.2 Conclusions

In this research, the following conclusions have been drawn:

1. There are three significant factors that affect the success of a suggestion system, namely, the Personal factor; the System and Institutional factor, and the Social Support factor.

2. The first factor, the Personal one, includes the following prioritised suggestion system success variables: Reward, Ease of Use, Clear Scope, Autonomy, Trust, Anonymous, Problem Solving, and Feedback.

3. The second factor, the System and Institutional factor prioritised its success variables in the following order: Resources, Supervisor Support, Training, Publicity, Colleague Support, Compliance, and Equality.

4. The third factor, the Social Support factor, prioritised Social Media first then Social Networking.

5. The variables within the major three factors are interrelated; an improvement in one of them can improve others. For example, when a monthly target was defined in a healthcare facility, it led to collaborating and joint submission.

6. The development of a trust culture and success in attracting suggestions takes time and hard work

7. Top management support is crucial to a real suggestion system success.

8.3 Research Questions

This thesis has addressed the following three questions:

1. What are the critical success factors of a suggestion system?

2. How to develop a suggestion system assessment framework considering a technology-usability concept?

3. How to utilise the developed assessment framework to evaluate Saudi healthcare facilities and how to identify future improvement opportunities?

The first question was answered based on a thorough literature review. Reviewed literature highlighted eighteen variables that act as drivers for the suggestion system's success.

The second question was addressed initially by investigating the relationships among the suggestion system success factors and the adopted technical usability

definition. After that, Factor Analysis and the Analytical Hierarchy Process were applied. Based on a series of scientific analyses and brainstorming sessions with subject matter experts in Saudi healthcare facilities, the researcher identified three significant factors that affect the usability of a healthcare suggestion system: the personal factor: the system and institutional factor social support.

Finally, the third question was answered using the two case studies on two Saudi healthcare facilities. Both case studies demonstrated a way to use the model to evaluate two Saudi healthcare facilities using the seventeen success variables in the three factors. It provided the three maturity levels of low, medium, and high. The model also identifies opportunities for improvement for low and medium maturity levels to pursue.

8.4 Research Contributions

The significant contributions of this research to the body of knowledge are as follows:

1. Identifying suggestion systems success drivers. There were eighteen suggestion system success variables that were identified from the literature review. These variables were Reward, Ease of Use, Clear Scope, Autonomy, Trust, Anonymous, Problem Solving, Feedback, Resources, Supervisor Support, Training, Publicity, Colleague Support, Compliance, Equality, Goal Setting, Social Media, and Social Networking. Moreover, and to the best of the researcher's knowledge, this research study is the only work conducted and published so far with this total number of success drivers.

2. Linking the defined suggestion system success variables to technology through a concept of usability. The components of the definition of usability were used to define the maturity levels for each variable.

3. Developing an assessment framework using the factor analysis tool then the analytical hierarchy process based on healthcare subject matter experts' feedback and a maturity model. Furthermore, and to the best of the researcher's knowledge also, this research study is the first of its type in the healthcare industry, in general, and in the Saudi healthcare sector, in specific.

4. Validating the developed assessment framework model using two Saudi healthcare facilities.

5. Providing a self-assessment tool to two Saudi healthcare facilities and identifying several opportunities for improvement.

8.5 Research Limitations

The following are the main limitations of this research:

1. Lack of literature on the research subject in the Saudi healthcare industry or even the Arab healthcare industry.

2. All the surveyed data for this research came from the Saudi healthcare sector. Therefore, the findings for this research are limited to this sector only. Other researchers can test the developed model in different sectors.

3. This research was carried on during the Covid19 pandemic. Unfortunately, the pandemic almost shut down all sectors in the country and put a real burden on the healthcare sector, in general. Therefore, it was a real challenge to collect data and meet people. Still, fortunately, the researcher did overcome this challenge by using a few communication applications such as Zoom, TEAMS, and an IT solution, Google Forms, in distributing the questionnaire.

4. Use of the Analytical Hierarchy Process and the development of a quantitative method has assumed a linear scale for factors, variables and maturity levels. This needs to be further evaluated by future researchers and the exact nature of this relationship established.

5. The model has been developed and tested for Saudi healthcare facilities. Therefore, the suggestion system applies to Saudi culture. Since most of the middle-east has a similar operating environment, a case can be made that this model can be used in other middle-eastern healthcare facilities too. However, more adaption is needed to successfully use this model for other non-middle eastern countries.

8.6 Future Research

For future researchers, we do suggest the following opportunities for further studies:

1. Although the technology usability concept has primarily been applied to product development and IT sector, this thesis has presented the application

of the concept of technology usability to suggestion systems which is a management field. Future researchers can also apply the same approach for other management and operations systems. One application could be around quality control; researchers can look at making quality control systems more usable.

2. In this thesis, Nielson's definition was used. This is a widely accepted definition of usability. However, there are other definitions, as well. Future researchers can also look at modifying the model using other definitions of usability.

3. This research has presented a model for Saudi healthcare facilities. Further research is needed to test this model on other Middle Eastern and non-middle eastern countries.

4. For this research, we have only used a three-level maturity model. Maturity models for other applications have been developed for higher levels of maturity. Future researchers can look at the possibility of extending this model to a higher-level model.

5. There is an assumption that the relationship between suggestion systems success variables and levels of maturity is linear. Future research can be done to test the linearity and nature of the relationship.

Bibliography

Ackah, C.G., Atta-Ankomah, R. and Kubi, J.A. (2020), Management Practices and Performance Improvement in Manufacturing Enterprises: The Case of Kaizen Adoption in Ghana. In: *Workers, Managers, Productivity* (pp. 269-292). Palgrave Macmillan, Singapore.

Ahmed, A.M.M.B. (2009), Staff suggestion scheme (3Ss) within the UAE context Implementation and critical success factors. *Development*, 2(2), 153-167.

Ahuja, G., Soda, G., Zaheer, A. (2012), The genesis and dynamics of organizational networks. *Organization Science,* 23, 434–448. doi:10.1287/orsc.1110.0695

Alguezaui, S. and Filieri, R. (2010), Investigating the role of social capital in innovation: sparse versus dense network. Journal of Knowledge Management, 14(6), 891-909.

Alves, J., Marques, M.J., Saur, I. and Marques, P. (2007), Creativity and Innovation through Multidisciplinary and Multi-sectoral Cooperation, *Creativity and Innovation Management*, 16(1), 27-34.

AlZubi, M. (2011), *The impact of organizational culture on knowledge sharing in the construction sector in Jordan*, Unpublished PhD Thesis, School of the Built Environment, The University of Salford.

Amabile, T. M. (1993), “Motivational synergy: Toward new conceptualizations of intrinsic and extrinsic motivation in the workplace”, *Human Resource Management Review*, 3, 185-201.

Amabile, T. M., Goldfarb, P. and Brackfield, S. (1990), “Social influences on creativity: Evaluation, coaction, and surveillance”, *Creativity Research Journal*, 3, 6-21.

Amabile, T. M., Hill, K. G., Hennessey, B. A. and Tighe, E. (1994), “The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations”, *Journal of Personality and Social Psychology*, 66, 950-967

Amabile, T. M., Regina, C., Heather, C., Lazenby, J. and Herron, M. (1996), “Assessing the work environment for creativity”, *Academy Management Journal*, 39(5), 1154-1184.

Amabile, T.M. (1979), “Effects of external evaluation on artistic creativity”, *Journal of Personality and Social Psychology*, 37, 221-233.

Amabile, T.M. (1997), Motivating creativity in organizations: On doing what you love and loving what you do. *California Management Review*, 39-58. doi:10.2307/41165921

Amabile, T.M. Schatzela, E.A., Monetaa, A.B. and Kramerb, S.J. (2004), Leader behaviors and the work environment for creativity: Perceived leader support. *Leadership*, 15, 5 - 32.

Amabile, T.M., Barsade, S.G., … Staw, B.M. (2005), Affect and creativity at work. *Administrative Science Quarterly*, 50, 367–403. doi:10.2189/asqu.2005.50.3.367

Amabile. T. and Gryskiewicz, S. (1987), *Creativity in the R&D Laboratory*. Tecbnical report no. 30, Center for Creative Leadersbip, Greensboro, NC.

Anderson, N., Potočnik, K. and Zhou, J. (2014), Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework. *Journal of Management*. doi:10.1177/0149206314527128

Anderson, T. A and Veillette, A. (2008), Contextual Inhibitors of Employee Creativity in Organizations: The Insulating Role of Creative Ability. *Group & Organization Management*, 34(3), 330-357.

Argote, L. and Miron-spektor, E. (2011), Organizational Learning : From Experience to Knowledge Linked references are available on JSTOR for this article : Organization jnfjTWffl Organizational Learning : From Experience to Knowled. *Organization Science,* 22, 1123–1137.

Arif, M. and Al-Kuwaiti, A. (2007), “Evaluating Suggestion System Effectiveness Through Usability”, *International Conference on Business and Information, July, Tokyo, Japan*, CD-ROM.

Arthur, J.B., Aiman-smith, L. and Arthur, J.E.F.B. (2010), Gainsharing and organizational learning: suggestions over time an analysis of employee. *Management*, 44(4), 737-754.

Attridge, M. (2009), Measuring and Managing Employee Work Engagement: A Review of the Research and Business Literature. *Journal of Workplace Behavioral Health*, 24(4), 383-398.

Apuke, O.D. (2017), Quantitative research methods: A synopsis approach. Kuwait Chapter of *Arabian Journal of Business and Management Review*, 33(5471),1-8.

Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D. and Waterson, P. E. (2000), "Shop Floor Innovation: Facilitating the Suggestion And Implementation Of Ideas", *Journal of Occupational and Organizational Psychology*, 73(3), 265-285.

Baer, M., Oldham, G.R. and Cummings, A. (2003), Rewarding creativity: When does it really matter? *Leadership Quarterly*, 14, 569–586. doi:10.1016/S1048-9843(03)00052-3

Baird, K., Hu, K.J. and Reeve, R. (2011), The relationships between organizational culture, total quality management practices and operational performance. *International Journal of Operations & Production Management*.

Bandura, A. and Locke, E.A. (2003), Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology*, 88, 87–99. doi:10.1037/0021-9010.88.1.87

Beiske, B. (2007), *Research Methods: Uses and Limitations of Questionnaires, Interviews and Case Studies*, Munich: GRIN Verlag.

Belkadi, F., Dhuieb, M. A., Aguado, J. V., Laroche, F., Bernard, A. and Chinesta, F. (2020), Intelligent assistant system as a context-aware decision-making support for the workers of the future. *Computers & Industrial Engineering*, 139, 105732.

Bernard, H. R. (2002), *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. New York: AltaMira.

Bessant, J. and Francis, D. (1999), Developing strategic continuous improvement capability, *International Journal of Operations & Production Management*, 19 (11), 1999, 1106-1119.

Bevan, N. (1995), Measuring usability as quality of use. *Software Quality Journal*. 4, 115-130.

Bhardwaj, G., Grover, R. and Madhavan, R. (2005),"*The Role of Social Capital in the New Product Development Process*." Working paper. University of Georgia, Athens.

Bias, R. G. and Mayhew, D. J. (Eds.) (1994), Cost- Justifying usability. San Francisco: Morgan Kaufmann Publishers. In Aaron Marcus, *Return on Investment for Usable User-Interface Design: Examples and Statistics*, 2002, Experience Intelligent Design. [online], Available: Amanda.com/resources/RPO/AMA_ROIwhitepaper_28Feb02.pdf [Accessed 5 June, 2009].

Binnewies, C. and Gromer, M. (2012), Creativity and innovation at work: The role of work characteristics and personal initiative. *Psicothema*, 24(1), 100-106.

Bjo, J. (2009), Where Do Good Innovation Ideas Come From? Exploring the Influence of Network Connectivity on Innovation Idea Quality. *Social Networks*, 26, 662-670.

Borgatti, S. P., Everett, M. G. and Freeman, L. C. (2002). *UCINET for Windows: Software for Social Network Analysis*. Harvard, MA: Analytic Technologies.

Borgatti, S.P. and Halgin, D.S. (2011), On network theory. *Organization Science*, 22(5), pp.1168-1181.

Bothos, E., Apostolou, D. and Mentzas, G. (2012), Collective intelligence with web-based information aggregation markets: The role of market facilitation in idea management. *Expert Systems with Applications*, 39, 1333–1345. doi:10.1016/j.eswa.2011.08.014

Brauner, P., Philipsen, R., Calero Valdez, A. and Ziefle, M. (2019), What happens when decision support systems fail?—the importance of usability on performance in erroneous systems. *Behaviour & Information Technology*, 38 (12), 1225-1242.

Brief, A.P. and Aldag, R.J. (1981), The “self” in work organizations: A conceptual review. *Academy of Management Review*, 6(1), 75-88.

Bryman, A. (2011), Research methods in the study of leadership. The SAGE handbook of leadership, 15-28.

Bryman, A. (2012), *Social Research Methods* (5th ed.). Oxford: Oxford University Press.

Buech, V.I.D., Michel, A. and Sonntag, K. (2010), Suggestion systems in organizations: what motivates employees to submit suggestions? *European Journal of Innovation Management*, 13(4), 507-525.

Bunduchi, R. (2009), Implementing Best Practices to Support Creativity in Npd Cross-Functional Teams, *International Journal of Innovation Management*, 13(4), 537-554.

Burt, R.S., Kilduff, M. and Tasselli, S. (2013), Social network analysis: Foundations and frontiers on advantage. *Annual Review of Psychology*. doi:10.1146/annurev-psych-113011-143828

Cann, A., Dimitriou, K. and Hooley, T. (2011), *Social Media: A guide for researchers.* Research Information Network, (February), 7. Retrieved from http://www.rin.ac.uk/system/files/attachments/social_media_guide_for_screen.pdf%5Cnhttp://www. rin.ac.uk/our-work/communicating-and-disseminating-research/social-media-guide-researchers

Carmeli, A. and Paulus, P.B. (2015), CEO ideational facilitation leadership and team creativity: The mediating role of knowledge sharing. *The Journal of Creative Behavior*, 49(1), 53-75.

Ceglie, G. and Dini, M. (1999), *SME Cluster and Network Development in Developing Countries: The Experience of UNIDO*, UNIDO.

Chaisson, K. M., Walsh, S., Simmons, Z. and Vender, R. L. (2006), "A clinical pilot study: High frequency chest wall oscillation airway clearance in patients with amyotrophic lateral sclerosis", *Amyotrophic Lateral Sclerosi,* 7, 107–111

Chin, K.S., Pun, K.F., Xu, Y. and Chan, J.S.F. (2002), An AHP based study of critical factors for TQM implementation in Shanghai manufacturing industries. *Technovation*, 22(11), 707-715.

Cho, S. (2008), Employee Relation Programs and Hotel Performance: Impact on Turnover, Labor Productivity, and RevPAR. *Journal of Human Resources*, 5(2), 112-119.

Collis, J. and Hussey, R. (2009), *Business research: A practical guide for undergraduate and postgraduate students*. Palgrave Macmillan, Basingstoke.

Colquitt, J.A., Scott, B.A., Rodell, J.B., Long, D.M., Zapata, C.P., Conlon, D.E. and Wesson, M.J. (2013), Justice at the millennium, a decade later: a meta-analytic test of social exchange and affect-based perspectives. *Journal of Applied Psychology*, 98(2), 199.

Costanza, R. (1995), Defining and predicting sustainability. *Ecological Economics*, 15(3), 193-196.

Creative Good (2000), *The dotcom survival guide*, Available: www. Creativegood.com [Accessed 5 June, 2009].

De Choudhury, M., Morris, M. R. and White, R. W. (2014), Seeking and sharing health information online. *Proceedings of the 32nd Annual ACM Conference on Human Factors in Computing Systems - CHI '14*, 1365–1376. https://doi.org/10.1145/2556288.2557214.

DeFillippi, R. and Sydow, J. (2016), Project Networks: Governance Choices and Paradoxical Tensions. *Project Management Journal*, 47, 6–17. doi:10.1177/875697281604700502

Delbecq, A. and Mills, P. (1995), *Managerial Practices that Enhance Innovation, the Creative Edge: How Companies Support Creativity and Innovation*. New York, American Management Association, pp: 39-49.

DeSanctis, G. and Poole, M.S. (1994), Capturing the complexity in advanced technology use: Adaptive structuration theory. *Organization Science*, 5(2), 121-147.

Dickinson, C. (1932), "Suggestion from Workers: Schemes and Problems", *Quarterly Journal of Economics,* 46 (4), 617-643.

Dickson, M.W., Smith, D.B., ... Ehrhart, M. (2001), An organizational climate regarding ethics: The outcome of leader values and the practices that reflect them. *Leadership Quarterly*, 12, 197–217. doi:10.1016/S1048-9843(01)00069-8.

Easterby-Smith, M., Thorpe, R. and Lowe, A. (2008), *Management Research*, 3rd Edition, Sage Publications Ltd, ISBN: 978-1847871770.

Edwards, T. (2000), Innovation and Organisation Change: Development towards an interactive process perspective. *Technology Analysis & Strategic Management*, 12(4), 445-464.

Egan, T. M. (2005), Factors Influencing Individual Creativity in the Workplace: An Examination of Quantitative Empirical Research. *Advances in Developing Human Resources*, 7(2), 160-181.

Eisenberger, R., Huntington, R., Hutchinson, S. and Sowa, D. (1986), 'Perceived organizational support'. *Journal of Applied Psychology*, 71, 500–507.

Fairbank, J.F., Spangler, W.E. and Williams, S.D. (2003), Motivating Creativity through a Computer-Mediated Employee Suggestion Management System. *Behaviour and Information Technology*, 22, 305–314. doi:10.1080/01449290310001593630

Fellows, R. and Liu, A. (2008), *Research Methods for Construction*. UK: Blackwell Publishing Ltd.

Fergie, G., Hunt, K. and Hilton, S. (2016), Social media as a space for support: Young adults' perspectives on producing and consuming user-generated content about diabetes and mental health. *Social Science and Medicine*, 170, 46–54. https://doi.org/10.1016/j.socscimed.2016.10.006.

Ferre, X., Juristo, N. and Moreno, A.M. (2005), June. Framework for integrating usability practices into the software process. In: *International Conference on Product Focused Software Process Improvement* (pp. 202-215). Springer, Berlin, Heidelberg.

Firdaus, A. and Ma'arif, M.S. (2016), Creating the Standard for Specific Energy Consumption at Palm Oil Industry. *Sinergi*, 20(1), pp.9-13.

Fjermestad, J. and Hiltz, S.R. (2000), January. Case and field studies of group support systems: an empirical assessment. In *Proceedings of the 33rd Annual Hawaii International Conference on System Sciences* (pp. 10-pp). IEEE.

Flick, U. (2011), Introducing research methodology: A beginner's guide to doing a research project. London: Sage.

Ford, C.M. (2000), Creative Developments in Creative Theory. *The Academy of Management Review,* 25, 284–285.

Frese, M. and Fay, D. (2001), The Concept of Personal Initiative: An Overview of Validity Studies. *Human Performance,* 14, 97–124.

Gamlin, J. N., Yourd, R. and Patrick, V., (2007), Unlock Creativity with "Active" Idea Management, *Research Technology Management*, 50(1), 13-16.

Giraldo, W.J., Ortega, M., Collazos, C. and Granollers, T. (2007), *Integrating usability techniques into rational unified process*. Interacción AIPO.

Goddard, W. and Melville, S. (2004), *Research Methodology: An Introduction*, (2nd ed.) Oxford: Blackwell Publishing.

Goldberg, L., Lide, B., Lowry, S., Massett, H.A., O'Connell, T., Preece, J., Quesenbery, W. and Shneiderman, B. (2011), Usability and accessibility in consumer health informatics: current trends and future challenges. *American Journal of Preventive Medicine*, 40(5), S187-S197.

Gould, J. D. (1988), How to design usable system. In *Handbook of Human–Computer Interaction*, edited by M. Helander, Amsterdam: NorthHolland.

Grant, A. M. and Ashford, S. J. (2008), The dynamics of proactivity at work: Lessons from feedback-seeking and organizational citizenship behavior research. In: B. M. Staw & R. M. Sutton (Eds.), *Research in Organizational Behavior* (Vol. 28), pp: 3-34. Amsterdam: Elsevier.

Griffiths-Hemans, J. and Grover, R. (2006), Setting the Stage for Creative New Products: Investigating the Idea Fruition Process, *Journal of the Academy of Marketing Science*, 34(1), 27-39.

Gupta, B., Eleanor, T. L., Iaroslava, G. D. and Jason, B.T. (2019), A Field-Based View on Gender in the Information Systems Discipline: Preliminary Evidence and an Agenda for Change, *Journal of the Association for Information Systems*, 20, 1870-1900.

Hackman, J.R. and Wageman, R. (2005), A theory of team coaching. *Academy of Management Review*, 30(2), 269-287.

Hadi-Vencheh, A. and Niazi-Motlagh, M. (2011), An improved voting analytic hierarchy process–data envelopment analysis methodology for suppliers selection. *International Journal of Computer Integrated Manufacturing*, 24(3), 189-197.

Haines, D. and Brown, A. (2018), Health professionals working effectively with support workers to enhance the quality of support for adults with intellectual disabilities: A meta-ethnography. *Journal of Applied Research in Intellectual Disabilities*, 31(2), 200-212.

Hair, J. F., Celsi, M. W., Money, A. H., Samouel, P. and Page, M, J. (2011), *Essentials of Business Research Methods*, Second Edition, M. E. Sharpe, New York, ISBN: 978-07656-2631-8.

Hall, J.K., Daneke, G. A. and Lenox, M.J. (2010), Sustainable development and entrepreneurship: Past contributions and future directions. *Journal of Business Venturing*, 25(5), 439-448.

Held, M. L., Black, D. R., Chaffin, K. M., Mallory, K. C., Milam Diehl, A. and Cummings, S. (2019), Training the future workforce: Social workers in integrated health care settings. *Journal of Social Work Education*, 55 (1), 50-63.

Hilles, A. Q., Ding, T.D. and Ahmed, P.K. (2009), Managing for innovation and creativity: organisational paradoxes in implementation practice, *International Journal of Management Practice*, 3(4), 305-326.

Holder, R. D. (1990), Some comments on the Analytic Hierarchy Process, *Journal of the Operational Research Society*, 41(11), 1073 – 1076.

Hollensen, S. and Schmidt, M. (2006), *Marketing Research an International Approach*, Essex: Pearson Education Ltd.

Huang, J., Zhuo, Y., Tian, X., Zhu, D. and Mustafa, R. (2020), Personalized disease treatment plan suggestion system based on big data and knowledge base. *Journal of Intelligent & Fuzzy Systems*, 38(1), 513-521.

Hudson, C. (2010), The Employee Suggestion the Employee Suggestion Program: Leveraging All the Talent, Copyright QuEST Forum 2002- 04. [online], Available: http://www.dqg.org/2004/subgroups/ideas.asp [Accessed 5 June, 2010].

Hultgren, P. (2008), "*The Motivating Suggestion System*", Unpublished Master Thesis in Industrial Engineering and Management, Department of Management, Blekinge Institute of technology.

Ibrahim Shire, M., Jun, G. T. and Robinson, S. (2020), Healthcare workers' perspectives on participatory system dynamics modelling and simulation: designing safe and efficient hospital pharmacy dispensing systems together. *Ergonomics*, 63 (8), 1044-1056.

Idris, M. and Zairi, M. (2006), Sustaining TQM: A Synthesis of Literature and Proposed Research Model, *Total Quality Management and Business Excellence*, 17(9), 1245-1260.

Imai, M. (1986), *Kaizen: The Key to Japan's Competitive Success*. New York: Random House Business Division.

Ireland, R.D., Hitt, M.A. and Vaidyanath, D. (2002), Alliance management as a source of competitive advantage. *Journal of Manaigement,* 28, 413–446. doi:10.1016/S0149-2063(02)00134-4

Isaksen, S.G. and Ekvall, G. (2010), Managing for innovation: The two faces of tension in creative climates. *Creativity and Innovation Management*, 19(2), 73-88.

Islam, R. and Ismail, A.Z.H. (2008), Employee motivation: a Malaysian perspective. International *Journal of Commerce and Management*, 18(4), 344-362.

ISO (1991) 9241 Part 11: Guidance on Usability.

Janssen, O. and Gao, L. (2015), Supervisory responsiveness and employee self-perceived status and voice behavior. *Journal of Management*, 41(7), 1854-1872.

Janssen, O. and Van Yperen, N.W. (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal,* 47, 368–384. doi:10.2307/20159587

Jong, J.P.J.D. and Hartog, D.N.D. (2007), How leaders influence employees innovative behaviour, *European Journal of Innovation Management*, 10(1), 41-64.

Kallas, Z., Lambarraa, F. and Gil, J M. (2011), "A stated preference analysis comparing the Analytical Hierarchy Process versus Choice Experiments", *Food Quality and Preference*, 22 (2), March 2011, 181-192, ISSN 0950-3293

Kaminsky, E. and Höglund, A. T. (2019), “Swedish Healthcare Direct Managers’ Views on Gender (In) equity: Applying a Conceptual Model”, *International Journal for Equity in Health,* 18(1), 114.

Kesting, P. and Ulhøi, J.P., (2010), Employee-driven innovation: extending the license to foster innovation. *Management Decision*, 48(1), 65-84.

Khan, F. A.; Asif, M., Ahmad, A., Alharbi, M. and Aljuaid, H. (2020), Blockchain technology, improvement suggestions, security challenges on smart grid and its application in healthcare for sustainable development. *Sustainable Cities and Society*, 55, 102018.

Kijkuit, B. and van den Ende, J. (2010), With a little help from our colleagues: A longitudinal study of social networks for innovation. *Organization Studies*, 31(4), pp. 451-479.

Kilduff, M. and Krackhardt, D. (2008), *Interpersonal Networks in Organizations: Cognition, Personality, Dynamics, and Culture* (Vol. 30). Cambridge University Press.

Kinnear, P. and Gray, C. (2010), *PASW 17 Statistics Made Simple: Replaces SPSS Statistics 17*. East Sussex: Psychology Press.

Kinnear, P.R. and Gray, C.D. (2000), *SPSS for Windows*. Release 10. Hove, UK: Psychology Press Ltd.

Kirschenbaum, H. (2012), What is “person-centered”? A posthumous conversation with Carl Rogers on the development of the person-centered approach. *Person-Centered & Experiential Psychotherapies*, 11(1), 14-30.

Kjeldsen, A.M. and Jacobsen, C.B. (2013), “Public service motivation and employment sector: Attraction or socialization?” *Journal of Public Administration Research and Theory*, 23, 899–926. doi:10.1093/jopart/mus039.

Klein, D. and Lechner, U. (2009), The Ideas Competition as Tool of Change Management –Participatory Behaviour and Cultural Perception. In: *Proceedings of the XXth ISPIM Conference. Vienna.*

Koc, T. and Ceylan, C. (2007), Factors impacting the innovative capacity in large-scale companies. *Technovation*, 27(3), 105-114.

Koseoglu, G., Blum, T.C. and Shalley, C.E. (2018), Gender similarity, coworker support, and job attitudes. *Journal of Management and Organization*, 1-19.

Kothari, C. R. (2004), *Research Methodology: Methods and Techniques*. New Delhi: New Age International.

Kozlowski, S.W.J. (2018), Enhancing the Effectiveness of Work Groups and Teams: A Reflection. *Perspectives on Psychological Science*, 13, 205–212. doi:10.1177/1745691617697078

Labuschagne, C., Brent, A.C. and van Erck, R.P.G. (2005), Assessing the sustainability performances of industries. *Journal of Cleaner Production*, 13(4), 373-385.

Lasrado, F. (2015), Assessing sustainability of employee suggestion schemes: a framework. *International Journal of Quality and Service Sciences,* 7, 350–372. doi:10.1108/IJQSS-12-2014-0056.

Lasrado, F. and Gomišček, B. (2015). A tool to measure maturity of an employee suggestion scheme. *Management and Production Engineering Review,* 6, 4–13. doi:10.1515/mper-2015-0011.

Lasrado, F., Arif, M., ... Urdzik, C. (2016), Critical success factors for employee suggestion schemes: A literature review. *International Journal of Organizational Analysis*. doi:10.1108/IJOA-04-2014-0753.

Lasrado, F., Gomiseck, B. and Uzbeck, C. (2017), Effectiveness of employee suggestion schemes – from critical success factors to outcomes. *International Journal of Quality and Service Sciences,* 9, 120-136. doi:10.1108/IJQSS-08-2016-0058.

Lazar, J., Jones, A., Bessiere, K., Ceaparu, I. and Shneiderman, B. (2003), User Frustration with Technology in the Workplace, *Proc. Association for Information Systems 2003 Americas Conference (2003),* 2199-2202. [online], Available: http://hcil.cs.umd.edu/trs/search.php?number=2004-12 [Accessed 5 September, 2009].

Leach, D.J., Stride, C.B. and Wood, S.J. (2006), The Effectiveness of Idea Capture Schemes, *International Journal of Innovation Management*, 10, 325–350.

Leboeuf, M. (1985), *The Greatest Management Principle in the World*. New York: Putnam.

Lee, H. and Chui, J. (2019), The mediating effect of interactional justice on human resource practices and organizational support in a healthcare organization. *Journal of Organizational Effectiveness: People and Performance.*6 (2), 129-144.

Lee, L., Lena, L. and Wong, P.K. (2006), *Individual attitudes, organizational reward system and patenting performance of R & D scientists and engineers*, Online at http://mpra.ub.uni-muenchen.de/595/, MPRA Paper No. 595.

Lewis, M. W., Welsh, M. A., Dehler, G. E. and Green, S. G. (2002), Product development tension: Exploring contrasting styles of project management. *Academy of Management Journal*, 45, 546–564.

Li, Y., Wang, X., Lin, X. and Hajli, M. (2015), *Seeking and sharing health information on social media: A net valence model and cross-cultural comparison.* Technological Forecasting and Social Change. https://doi.org/ 10.1016/j.techfore.2016.07.021.

Liberati, E. G., Ruggiero, F., Galuppo, L., Gorli, M., González-Lorenzo, M., Maraldi, M., Ruggieri, P., Friz, H. P., Scaratti, G. and Kwag, K. H. (2017), What hinders the uptake of computerized decision support systems in hospitals? A qualitative study and framework for implementation. *Implementation Science*, 12, 113, 1-13.

Liebowitz, J. (2005), Linking social network analysis with the analytic hierarchy process for knowledge mapping in organizations. *Journal of Knowledge Management,* 9, 76–86. doi:10.1108/13673270510582974

Lipponen, J., Bardi, A. and Haapamäki, J. (2008), The interaction between values and organizational identification in predicting suggestion-making at work, *Journal of Occupational and Organizational Psychology*, 81(2), 241-248.

Litchfield, R.C., Fan, J. and Brown, V.R. (2011), Directing idea generation using brainstorming with specific novelty goals. *Motivation and Emotion,* 35, 135–143. doi:10.1007/s11031-011-9203-3

Liu, D., Jiang, K., ... Zhou, J. (2016), Motivational mechanisms of employee creativity: A meta-analytic examination and theoretical extension of the

creativity literature. *Organizational Behavior and Human Decision Processes*, 137, 236–263. doi:10.1016/j.obhdp.2016.08.001

Lloyd., G.C. (1999), Stuff the suggestion box, *Total Quality Management*, 10(6), 869-875.

Love, T. (1998), Managing your small business. *Nation's Business*, 86(5), 11-16.

Madjar, N. (2005), The Contributions of Different Groups of Individuals to Employees' Creativity. *Advances in Developing Human Resources,* 7, 182–206. doi:10.1177/ 1523422305274525

Madjar, N. (2008), Emotional and informational support from different sources and employee creativity. *Journal of Occupational and Organizational Psychology*, 81(1), 83-100.

Maguire, M. (2001), Context of use within usability activities, in: *International Journal of Human Computer Studies*. Academic Press, pp. 453–483. doi:10.1006/ijhc.2001.0486

Mahon-Haft, T.A. and Dillman, D.A. (2010), May. Does visual appeal matter? Effects of web survey aesthetics on survey quality. In Survey Research Methods 4 (1), 43-59.

Malaviya, P. (2005), Innovation Management in Organizational Context: An Empirical Study. *Global Journal of Flexible Systems Management*, 6 (2), 1-14

Malhotra, K.N. and Birks, F.D. (2007), *Marketing Research: An Applied Approach*. 3rd ed. Harlow: Pearson Education Limited.

Mao, C. M. and DeAndrea, D. C. (2019), How anonymity and visibility affordances influence employees' decisions about voicing workplace concerns. *Management Communication Quarterly*, 33 (2), 160-188.

Marcus, A. (2002), *Return on Investment for Usable User-Interface Design: Examples and Statistics*, 2002, Experience Intelligent Design. [online], Available: Amanda.com/resources/RPO/AMA_ROIwhitepaper_28Feb02.pdf.

Marin-Garcia, J.A., Miralles, C., Garcia-Sabater, J.J. and Perello-Marin, M.R. (2011), Alternative tools to mass production and human performance indicators in sheltered work centers of Valencian community (Spain). *Journal of Industrial Engineering and Management (JIEM),* 4(3), 467-480.

Marx, A.E. (1995), *Management Commitment for Successful Suggestion Systems*. Work study.

Marx, A.E. (2008), *Critical Success Factors of Suggestions Systems*, Ife Psychologia, http://137.215.9.22/bitstream/handle/2263/8157/Marx_Critical%282008%29.pdf?sequence=1.

Mburu, L. N. (2020), Examining how Employee Characteristics, Workplace Conditions and Management Practices all combine to Support Creativity, Efficiency and Effectiveness. *International Journal of Business Management, Entrepreneurship and Innovation*, 2 (1), 52-64.

McAllister, D.J., Kamdar, D., Morrison, E.W. and Turban, D.B. (2007), Disentangling role perceptions: how perceived role breadth, discretion, instrumentality, and efficacy relate to helping and taking charge. *Journal of Applied Psychology*, 92(5), 1200.

McDonough, J. and McDonough, S. (1997), *Research Methods for English Language Teachers*. London: Arnold.

McLean, L.D. (2005), Organizational Culture's Influence on Creativity and Innovation: A Review of the Literature and Implications for Human Resource Development, *Advances in Developing Human Resources*, 7, 226-246.

McLeod, P.L. (2011), Effects of anonymity and social comparison of rewards on computer-mediated group brainstorming. *Small Group Research*, 42(4), 475-503.

Mehrajunnisa, M. and Jabeen, F. (2020), Antecedents to employee suggestion schemes: the study of UAE. *The TQM Journal.* 32 (3), 497-519.

Merriam, S. B. (1998), *Qualitative Research and Case Study Applications in Education*. San Francisco: Jossey-Bass.

Miao, R. and Cao, Y. (2019), High-performance work system, work well-being, and employee creativity: Cross-level moderating role of transformational leadership. *International journal of environmental research and public health*, 16 (9), 1640.

Miron-Spektor, E., Ingram, A., Keller, J., Smith, W.K. and Lewis, M.W. (2018), Microfoundations of organizational paradox: The problem is how we think about the problem. *Academy of Management Journal*, 61(1), 26-45.

Mishra, J.M. and McKendall, M. (1993), Employee suggestion programs: the rewards of involvement. *The Health Care Supervisor*, 12(1), 29-35.

Mohamad, E. and Salleh, S. M. (2019), The Quality of Health Parasocial Opinion Leaders on Social Media, A Literature Review*." e-Bangi,* 16(7), 1-22.

Molich, R. and Nielsen, J. (1990), Improving a Human-Computer Dialogue. *Communications of the ACM*, 11(3), 3-21.

Montgomery County Public Schools (2002), *How to make a "usable' web site*, [online] available www.mcps.k1.md.us/departments/web/training/pdfs/ 3usability.pdf [accessed 25/8/2009]

Moreira, M. W., Rodrigues, J. J., Korotaev, V., Al-Muhtadi, J. and Kumar, N. (2019), A comprehensive review on smart decision support systems for health care. *IEEE Systems Journal*, 13 (3), 3536-3545.

Naeem, M. (2019), Uncovering the role of social media and cross-platform applications as tools for knowledge sharing. *VINE Journal of Information and Knowledge Management Systems.* 49 (3), 257-276.

Neagoe, L.N. and Klein, V.M. (2009). Employee suggestion system (kaizenteian) the bottom-up approach for productivity improvement. *Control*, 10(3), 26 - 27.

Nielsen, J. (2003), "*Alertbox, Usability 101: Introduction to Usability*", August 25, [online], Available http://www.useit.com/alertbox/20030825.html [Accessed 5 June, 2009]

Nielsen, J. and Loranger, H. (2006), Prioritizing web usability*. Proc. ACM CHI'06 Conf. (Chicago, IL, 1-5 April),* 249-256.

Noor, K.B.M. (2008), Case Study: A strategic Research Methodology, *American Journal of Applied Science*, 5(11), 1602-1604.

Oates, B.J. and Capper, G. (2009), Using systematic reviews and evidence-based software engineering with masters students. In 13th *International Conference on Evaluation and Assessment in Software Engineering* 13, 1-9.

Obstfeld, D. (2012), Creative projects: A less routine approach toward getting new things done. *Organization Science*, 23, 1571–1592. doi:10.1287/orsc.1110.0706

Ohly, S., Kase, R. and Skerlavaj, M. (2010), Networks for generating and validating ideas: the social side of creativity. *Innovation: Management, Policy and Practice*, 12, 41-52.

Oldham, G.R. and Hackman, J.R. (2010), Not what it was and not what it will be: The future of job design research. *Journal of Organizational Behavior*, 31(2-3), 463-479.

Ong, M.H.A. and Puteh, F. (2017), Quantitative data analysis: Choosing between SPSS, PLS, and AMOS in social science research. *International Interdisciplinary Journal of Scientific Research*, 3 (1), 14-25.

Oppenheim, A.N. (2000), *Questionnaire Design, Interviewing and Attitude Measurement*. London: Print Pub Ltd.

Ostacher, M. J. (2020), A Simple Suggestion: Make Follow-Up Appointments for All Patients After Discharge, Especially Those with Co-Occurring Addictions. *The Journal of Clinical Psychiatry,* 81 (5).

Ostrowski, D. (2017), Assessment of employee engagement in the implementation of an employee suggestion program in company X–Research results. *Economic and Environmental Studies*, 17 (4), 985-1002.

Paolillo, J. and Brown, W. (1978), How organizational factors affect R&D innovation. *Research Management*, 21, 12-15.

Parker, S.K. (2014), Beyond motivation: Job and work design for development, health, ambidexterity, and more. *Annual Review of Psychology*. doi:10.1146/annurev-psych-010213-115208

Parnes, S.J. and Noller, R. B. (1971), Applied Creativity: The Creative Studies Project", "*Journal of Research and Development in Education*, 6(1), 63-66.

Paulus, P.B. (2008), Effects of training on Idea Generation in Groups, *Small Group Research*. 39(5), 523-541.

Payne, G. and Payne, J. (2004), *Key Conceptions in Social Research*. London: Sage.

Pissarra, J.O. and Jesuino, J.C., (2005), Idea generation through computer-mediated Communication: The effects of anonymity, *Journal of Managerial Psychology*, 20(3/4), 275-291.

Postmes, T., Spears, R., Lee, A.T. and Novak, R.J. (2005), Individuality and social influence in groups: Inductive and deductive routes to group identity. *Journal of Personality and Social Psychology*, 89(5), 747.

Powell, S.G., Baker, K.R. and Lawson, B. (2008), A critical Review of the Literature on Spreadsheet Errors, *Decision Support Systems*, 46(1), 128-138.

Prather, B.C.W. and Turrell, M.C. (2002), *How to Challenge and Involve All Employees to Improve the Bottom Line*., http://www.bottomlineinnovation.com/article11.htm.

Pritchard, R.D. and Karasick, B.W. (1973), The Effects of Organizational Climate on Managerial Job Performance and Job Satisfaction, *Organizational Behavior and Human Performance*, 9(10), 126-146.

Puccio, G.J. and Cabra, J.F. (2010), Organizational creativity: A systems approach. In: *The Cambridge Handbook of Creativity*. pp. 145–173.

Qates, B. J. (2006), *Researching Information Systems and Computing*. Sage, London.

Rajabion, L., Shaltooki, A. A., Taghikhah, M., Ghasemi, A. and Badfar, A. (2019), Healthcare big data processing mechanisms: the role of cloud computing. *International Journal of Information Management*, 49, 271-289.

Rapp, C. and Eklund, J. (2007), Sustainable Development of a Suggestion System: Factors Influencing Improvement Activities in a Confectionary Company, *Human Factors*, 17(1), 79-94.

Rego, A., Machado, F. and Leal, S. (2009), Are Hopeful Employees More Creative? An Empirical Study. *Creativity Research Journal*, 21(2), 223-231.

Rekonen, S. and Björklund, T.A. (2016), Perceived managerial functions in the front-end phase of innovation. *International Journal of Managing Projects in Business*.

Reychav, I. and Sharkie, R. (2010), Trust: an antecedent to employee extra-role behaviour. *Journal of Intellectual Capital*, 11(2), 227-247.

Rhoades, L. and Eisenberger, R. (2002), Perceived Organizational Support: A Review of the Literature. *Journal of Applied Psychology*, 87(4), 698 -714.

Rietzschel, E.F., Nijstad, B.A. and Stroebe, W. (2010), The selection of creative ideas after individual idea generation: Choosing between creativity and impact Management, *British Journal of Psychology*, 101, 47–68.

Robinson, A.G. and Schroeder, D.M. (2003), *Ideas Are Free*. San Francisco: Berrett-Koehler Publishing Inc.

Robson, C. (2002), *Real World Research*, (2nd Edition). Great Britain, Blackwell publishers.

Saaty, T. L. (2008), Decision making with the analytic hierarchy process, *International Journal of Services Sciences*, 1(1), 83 - 98.

Sanjay J. K., Robert, W. B. and Janice R. N., (2003), *Research-Based Web Design & Usability Guidelines*, The U.S. Department of Health and Human Services and the U.S. General Services Administration [online] available: http://www.usability.gov/pdfs/guidelines.html..

Santos, J. R. A. (1999), Cronbach's Alpha: A Tool for Assessing the Reliability of Scales, *Journal of Extension*, 37(2), available online at http://www.joe.org/joe/1999april/tt3.php?ref=Klasistanbul.com.

Saunders, M., Lewis, P. and Thornhill, A. (2007), *Research Methods for Business Students*, Pearson Education, GB.

Saunders, M., Lewis, P. and Thornhill, A. (2009), *Research Methods for Business Students*, (5th Ed), Harlow: FT Prentice Hall.

Scholl, A., Manthey, L., Helm, R. and Steiner, M. (2005), Solving multi attribute design problems with analytic hierarchy process and conjoint analysis: An empirical comparison, *European Journal of Operational Research*, 164, 760–777.

Scholz, S. W. and Decker, R. (2007), Measuring the impact of wood species on consumer preferences for wooden furniture by means of the Analytic Hierarchy Process, *Forest Products Journal*, 57(3), 23-28.

Scott, S.G. and Bruce, R.A. (1994), Determinants of innovative behavior: A path model of individual innovation in the workplace, *Academy of Management Journal*, 37, 580-607.

Sekaran, U. (2003), *Research Methods for Business* (4th ed.). Hoboken, NJ: John Wiley & Sons.

Senge, P. M. (2003), Taking personal change seriously: The impact of Organizational Learning on management practice, *Academy of Management Executive*, 17(2), 47-50.

Shackel, B. (1997), Human-computer interaction-Whence and whither? *Journal of the American Society for Information science*, 48(11), 970-986.

Shair, D. I. (1993), An economical way to track employees suggestion. *HR Magazine*, 3898, 39-46.

Shang, S. S. C., Wu, Y. L. and Li, E, Y. (2016). *Field effects of social media platforms on information- sharing continuance: Do reach and richness matter?* Information & Management. https://doi.org/10.1016/j.im.2016.06.008

Sherf, E. N. and Morrison, E. W. (2020), I do not need feedback! Or do I? Self-efficacy, perspective taking, and feedback seeking. *Journal of Applied Psychology*, 105 (2), 146-165.

Siegel, S.M. and Kaemmerer, W.F. (1978). Measuring the perceived support for innovation in organizations. *Journal of Applied Psychology,* 63, 553–562. doi:10.1037/0021-9010.63.5.553

Silverman (2013), *Doing Qualitative Research: A Practical Handbook*, by David Silverman, Los Angeles, Sage, 2010, 456 pp., ISBN 978-1-84860-033-1, ISBN 978-1-94960-034-8.

Smith, W.K. and Lewis, M.W. (2011), Toward a Theory of Paradox: A Dynamic Equilibrium Model of Organizing. *Academy of Management Review*, 36: 381–403. doi:10.5465/amr.2011.59330958.

Somekh, B. and Lewin, C. (2007), *Research Methods in the Social Sciences, Sage Publications*, 3rd Edition. London, UK.

Stelson, P., Hille, J., ... Doolen, T. (2017), What drives continuous improvement project success in healthcare? *International Journal of Health Care Quality Assurance*, 30, 43–57. doi:10.1108/IJHCQA-03-2016-0035.

Stenmark, D. (2000), Company-wide brainstorming: Next Generation Suggestion Systems?, *Proceedings of IRIS 23, Laboratorium for Interaction Technology, University of Trollhättan Uddevalla*, [online], Available:www.viktoria.se/results/result_files/141.pdf.

Stern, S. (2006), *Interesting Stuff. Human Resources*. March 2006, London, p.7. [Online]

Stöber, T., Kotzian, P. and Weißenberger, B. E. (2019), Design Matters: On the Impact of Compliance Program Design on Corporate Ethics. *Business Research,* 12(2), 383-424.

Sun, L.Y., Zhang, Z., Qi, J. and Chen, Z.X. (2012), Empowerment and creativity: A cross-level investigation. *The Leadership Quarterly*, 23(1), 55-65.

Sun, S. (2008), Organizational culture and its themes. *International Journal of Business and Management*, 3(12), 137-141.

Tahiri, F., Osman, M. R., Ali, A., Yusuff, R. M. and Esfandiary, A. (2008), AHP Approach for supplier evaluation and selection in a steel manufacturing company, *Journal of Industrial Engineering and Management*, 1(2), 54-76.

Teddlie, C. and Tashakkori, A. (2010), Overview of contemporary issues in mixed methods research. *Handbook of mixed methods in social and behavioral research*, 2, 1-41.

Thackeray, Crookston and West. (2013), Correlates of Health-Related Social Media Use among Adults, *Journal Medical Internet Research*, 15(1):e21

TIC Saúde. (2015), Survey on the use of information and communication technologies in brazilian health care facilities: ICT in health 2015/São Paulo. Retrieved from http://cetic.br/ media/docs/publicacoes/2/tic_saude_2015_livro_eletronico.pdf

Tidd, J. (2010), *From models to the management of diffusion*. Gaining momentum: Managing the diffusion of innovations, 3-45.

Tung, Y. C., Chou, Y. Y., Chang, Y. H. and Chung, K. P. (2020), Association of intrinsic and extrinsic motivating factors with physician burnout and job satisfaction: a nationwide cross-sectional survey in Taiwan. *BMJ open*, 10(3), 1-10.

Turrell, M. (2002), *Idea Management and the Suggestion Box*, White Paper - 0802-1 © Imaginatik, [online], Available www. imaginatik. Com [Accessed 5 June, 2010].

Unsworth, K.L. and Clegg, C.W. (2010), Why do employees undertake creative action*? Journal of Occupational and Organizational Psychology*, 83(1), 77-99.

van de Vrande, V., de Jong, J.P., ... de Rochemont, M. (2009), Open innovation in SMEs: Trends, motives and management challenges. *Technovation*, 29, 423–437. doi:10.1016/j.technovation. 2008.10.001

Vashdi, D.R, Bamberger, P.A, ... Vashdi, D.R., 2013. 60. Vashdi, D., Erez, M. and Bamberger, P. (2013), Can Surgical Teams Ever Learn? Towards a Theory of Transitive Team Learning in Action Coordination, Complexity, and Transitivity in Action Team Learning. *Academy of Management Journal,* 56, 945–971.

Verespej, M. A. (1992), Suggestion Systems gain new luster. *Industry Week*, 241 (22), 11-18.

Verworn, B. (2009), Does Age Have an Impact on Having Ideas? An Analysis of the Quantity and Quality of Ideas Submitted to a Suggestion System, *Creativity and Innovation Management*, 18(4), 326-333.

Vividence, Corp. (2001), *Moving on up: Move. com improves customer experience*. Retrieved October 15, 2001, [online], available: http:// www. vividence. com/ public/ solutions/ our+ clients/ success+ stories/ movecom. htm. [Accessed 15 June, 2010].

Wikipedia, The free encyclopedia, *Universal Usability* (2010), [online] available: http://en.wikipedia.org/ wiki/Universal_Usability accesed 26/8/2009.

Wilms, W. W., Alan, J. H. and Deone, M. Z. (1994), "*Cultural transformation at NUMMI*", *Sloan Management Review*, 36 (1): 99-113.

Wilson, G., Du Plessis, A. and Marx, A.E. (2010), The use of suggestion systems as a tool to solicit input from internal customers. *Interdisciplinary Journal of Contemporary Research in Business*, 2(7), 212-223.

Wood, A. (2003), Managing employees' ideas: From where do ideas come? *The Journal for Quality and Participation*, 26 (2), 22-27.

Wood, S. and De Menezes, L.M. (2011). High involvement management, high-performance work systems and well-being. *The International Journal of Human Resource Management*, 22(07), 1586-1610.

Wynder, M. (2008), Motivating creativity through appropriate assessment: lessons for management accounting educators, *e-Journal of Business Education & Scholarship of Teaching*, 2(2), 12-27.

Yin, R. K. (2009), *Case Study Research: Design and Methods* (4th Ed.). Thousand Oaks, CA: Sage.

Yin, R.K. (2003), *Applications for Case Study Research*, (2nd Ed), London: Sage.

Yuan, F. and Zhou, J. (2008), Differential Effects of Expected External Evaluation on Different Parts of the Creative Idea Production Process and on Final Product Creativity. *Creativity Research Journal*, 20(4), 391-403.

Zainal, Z. (2007), Case Study as a Research Method, *Journal Kemanusiaan*, 9(1), 1-6.

Zhang, X. (2010), Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*, 53(1), 107-128.

Zhou, J. and George, J.M. (2010), When job dissatisfaction leads to creativity: encouraging the expression of voice. *Management*, 44(4), 682-696.

Zhou, Q. and Shipton, H. (2016), Making creativity an attractive option. In: Human Resource Management, Innovation and Performance (pp. 313-327). Palgrave Macmillan, London.

Appendix A: Cover Letter

Dear Sir/Madam

Suggestion systems are considered among the most importantly, continuous improvement mechanisms. However, traditional suggestion systems development process is subject to human behavior that might discourage overall participation. Therefore, interactive and straightforward systems will encourage participation. Employee's creativity and positive engagement remain a crucial aspect of successful suggestion system implementation. Hence, usability is considered the critical pillar in any suggestion system development and implementation process.

This survey is part of a PhD research project at the University of Wolverhampton. You are invited to take part in this study as you work for a Saudi health care facility that adopts a suggestion system. I do plan to develop a model that assess the usability of Saudi health care suggestion systems aiming to improve them.

The overall goal of this research is to develop a usability-based assessment framework for suggestion systems in Saudi healthcare facilities. The specific objectives are:

1. Identify suggestion systems success factors and their implementations and limitations.
2. Adopt a usability definition and define its fundamentals.
3. Design a usability-based model.
4. Validate the developed assessment framework using selected Saudi healthcare facilities and propose improvement plans.
5. Discuss overall findings and outline future research recommendations.

Participation in this questionnaire is voluntary. Participants have the freedom to withdraw at any time during the survey process, and their responses will be destroyed immediately. Neither participant information nor feedback will be shared with any person or agency. All participants' responses will be eventually consolidated and used in this research. If you decide to receive a summary of the research outcomes, please provide us with your contact details at the end of the questionnaire and will share with your research findings. All submitted responses will be password protected and saved electronically under the researcher's responsibility. Furthermore, questionnaire responses will be destroyed within two years of receipt.

Please complete the questionnaire and return it to me by September 1st,, 2020 via the sent Google Forms Link. Should you need any further clarifications or assistance in this matter, please do not hesitate to contact me.

Thank you, and I look forward to receiving your feedback soon.

Sincerely yours,

Lina H. Khusheim: [e-mail address redacted]

Mobile [number redacted]

المكرم/ المكرمة

يعتبر نظام الاقتراحات من ضـــمن أكثر الآليات أهمية والتي تسـاهم في عملية التحسين المستمر، ولكن عملية تطوير أنظمة الاقتراحات التقليدية تخضـــع للســـلوك البشـــري الذي قد يحبط عملية المشـــاركة بأكملها. ولذا فإن وجود أنظمة اقتراحات تفاعلية ومباشـرة سـيشـجع على المشـاركة، وسـيظل عنصـر الإبداع لدى الموظف والمشـــاركة الإيجابية منه جانباً مهماً في إنجاح تطبيق أي نظام اقتراحات، ومن ثمّ فإن إمكانية الاسـتخدام تعدّ الركن الأســـاســـي في أي عملية تنفيذ وتطوير لنظم المقترحات.

هذا الاسـتبيان جزء من مشـروع بحث الدكتوراه المقدم إلى جـامعـة ولفرهـامتون في المملكـة المتحـدة. وإنني أدعوك للمشاركة في هذه الدراسة لأنك تعمل في منشأة سعودية للرعاية الصحية تطبق نظام الاقتراحات. وإني بصـدد وضـع نموذج يقيّم أنظمة الاقتراحات المطبقة في منشـــآت الرعاية الصـــحية الســـعودية بهدف تحســـينها وتطويرها.

إن الهدف الكلي لهذا البحث هو وضـــع إطار تقييم قائم على أســـاس إمكانية الاســـتخدام لأنظمة الاقتراحات في منشآت الرعاية الصحية السعودية. في حين أن الأهداف المحددة هي كما يلي:

1. تحـديـد عوامـل نجـاح أنظمـة الاقتراحـات وتنفيذها والقيود القائمة أمامها.
2. تبني تعريف لإمكـانيـة الاســـتخدام وتحـديـد عناصرها الأساسية.
3. تصميم نموذج قائم على إمكانية الاستخدام.

تحت مسؤولية الباحثة. علاوة على ذلك سيتم التخلص من ردود الاستبيانات خلال عامين من استلامها.

يرجى إكمال الاستبيان وإعادته إليّ بحلول الأول من سبتمبر من عام 2020 من خلال رابط Google Forms المرسل لكم وفي حالة طلبك لمزيد من التوضيح أو المساعدة في هذا الصدد فيرجى عدم التردد في الاتصال بي.

شكراً لكم، وأتطلع إلى تلقي إفاداتكم وتعقيباتكم في اقرب فرصة ممكنة لكم بإذن الله.

الباحثة:

لينا همام خشيم:

[e-mail address redacted]

جواص [number redacted]

4. التحقق من صحة إطار التقييم المطور باستخدام منشآت مختارة سعودية للرعاية الصحية واقتراح خطط للتحسين.
5. مناقشة النتائج الكلية وبيان توصيات البحث المستقبلية.

تعتبر المشاركة في هذا الاستبيان اختيارية وللمشاركين حرية الانسحاب في أي لحظة أثناء عملية الاستبيان، كما سيتم إتلاف إجاباتهم على الفور. ولن تتم مشاركة اسم المشارك ولا إفادته مع أي شخص أو اي جهة كانت. جميع إجابات المشاركين ستُدمج في النهاية وتستخدم في هذا البحث. وإذا أردت أن تحصل على ملخص بنتائج ذا البحث فالرجاء تزويدي بتفاصيل التواصل معك في نهاية الاستبيان وسوف أشركك في نتائج البحث. كما ستتم حماية جميع الردود المقدمة بكلمة مرور سرية تحفظ في ملفات اليكترونية آمنة

Appendix B: Questionnaire

Survey Questionnaire on Suggestion Support System for Healthcare Facilities in Saudi Arabia: An Assessment Framework

Part 1:

1. Please click the appropriate age group you fall into:

a. 18-22 years,

b. 23-30 years

c. 31-40 years

d. 41-50 years

e. 51+

2. Gender:

a. Male

b. Female

c. Other

3. Educational Qualification:

a. Elementary school

b. Non-Medical diploma/certifications

c. Medical degree

d. Management degree

4. How many years have you been working for this healthcare organization/facility?

a. 0-3 Years

b. 4-6 Years

c. 7-10 Years

d. 11-20 Years

e. 21 Years +

5. For how many years have you participated/known about or managed suggestion systems, (this job or previous jobs)?

a. 0-3 Years

b. 4-6 Years

c. 7-10 Years

d. 11-20 Years

e. 21+ Years

6. How will you categorize your job role?

1. Labour staff
2. Para-medical staff
3. Secretarial staff
4. Doctors and Physicians
5. Top Management
6. Other

7. Have you ever submitted suggestion(s) to improve the system of your current or previous healthcare organization/facility?

1. Yes
2. No

8. If yes, how often do you submit suggestions?

1. Once a year
2. 2-5 times a year
3. 6-10 times a year
4. 10+ suggestions a year
5. N/A (if your answer for Q7 was No)

9. Have any of your suggestions been accepted for reward?

a. Yes

b. No

10. Have any of your accepted suggestions been implemented?

a. Yes

b. No

c. N/A (if your answer for Q9 was No)

11. Have you received detailed feedback on your suggestions if they were rejected?

1. Yes
2. No

12. Which type of suggestion system(s) does healthcare organization/facility use?

a. Central system managed at the head office

b. Central system managed at the head office but with the support of a local/ departmental contact person

c. Local departmental suggestion system

d. Other

13. Which type of platform is used for idea submission?

1. Online system

2. Paper based forms
3. Combination of both

14. Which type of reward system does your healthcare organization/facility have?
    1. Financial reward
    2. Non-financial reward – Gifts
    3. Certificate and recognition only
    4. Other

Part 2

Rate each question on a five-point Likert type scale to show your agreement/ dis-agreement about the impact of these factors on the success of a suggestion system.

Rate the impact of following factors on the success of suggestion system						
#	Variable	(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree
15	Your healthcare organization/facility believes that resources (personnel, technology, systems, processes and rewards) play an important role in the success of suggestion systems.					
16	Your organization believes in the necessity of defining measured targets for employees' suggestions and submission deadlines.					
17	Your healthcare organization/facility believes that the arrangement of the internal social events in an organization can encourage the creation of new ideas.					
18	Your healthcare organization/facility believes that social media can be used to encourage people for their participation in suggestion systems.					
19	Your healthcare organization/facility believes that support from colleagues is important in generating, submitting and revising new ideas.					
20	Your healthcare organization/facility believes that support from supervisors can encourage people to use suggestion system(s).					
21	Your healthcare organization/facility believes that equality among employees (gender, nationality, religion) can encourage them to participate in suggestion system(s).					
22	Your healthcare organization/facility believes that advertising tools can be used to encourage employees to participate in suggestion system(s).					
23	Your healthcare organization/facility believes that proper training of					

	employees can result in better use of suggestion system(s).					
24	Your healthcare organization/facility believes that fair and timely feedback on the submitted suggestions are important for a successful suggestion system.					
25	Your healthcare organization/facility believes that appropriate recognition and/or rewards can encourage active participation.					
26	Your healthcare organization/facility believes that compliance of organizational policies with local and cultural values encourage people to participate in suggestion system(s).					
27	Your healthcare organization/facility believes that ease of using the suggestion System (Form filling, submitting and monitoring) is important for effective participation.					
28	Your healthcare organization/facility believes that fair and trustable system (no fear of victimization) encourage people to participate.					
29	Your healthcare organization/facility believes that clarity of scope and guidance should be provided for the required suggestions.					
30	Your healthcare organization/facility believes that anonymous evaluation of suggestions (blind review for both evaluator and initiator) encourages people to submit their ideas freely.					
31	Your healthcare organization/facility believes that autonomy of submission (no need to ask permission before submitting ideas/suggestions) can boost employees' participation.					
32	Your organization solicits its employees to suggest solutions for ongoing challenges, problems, and issues.					

Appendix C: Questionnaire Brainstorming Session

Interview Questions

1. Are these questions in the survey form clear and understandable?
2. Do you think your organization needs a good suggestion system?
3. Do you think that the culture of your organization supports a suggestion system?
4. Do you think that the people of your organization will be supportive of ‘out of the box’ thinking?
5. Do you think that your organization has the required resources to support any good suggestion system?
6. How are decisions currently taken in your organization? (Do you involve different tiers of organizational staff or are only top management involved in decision making?)
7. Do you think that a good suggestion support system can add any value to your organization? (If yes, which kind of value. If not, then what is the reason?)
8. Are you aware of current suggestion support systems being used in the health care industry?
9. Are you aware about the use of suggestion support systems being used by your competitors in your city/country?
10. What is the current way of collecting suggestions/ ideas in your organization?

Appendix D: The Initial Maturity Model

	Low Healthcare Facility has no clear direction	**Medium** Implemented in Healthcare Facility but top management not monitoring or follow-up	**High** Top management in Healthcare Facility has active involvement and regular follow-up
Personal Factor			
Feedback	The Healthcare facility feedback is not time accurate, and they have no fixed format to replay back. In some cases, the system is available but not activated, plus there is no response.	The Healthcare facility has accurate feedback with fixed format and time. However, the person in charge of the feedback system is not committed to a fixed form with covering the right detailed and not replying at the right time.	Feedback is accurate In the Healthcare facility with fixed format and duration. A pattern for regular follow up scheduled to examine the feedback process. The person who is responsible for feedback is committed to a fixed form and replying at the right time with a set calendar. The evaluation criteria of the feedback policy are revised regularly based on the developed strategy of healthcare as needed. The reviewers receive information occasionally from top management on changing priorities of the healthcare facility. There are circumstances when senior management can consider appeals against the feedback. There is an appeals process in place, and if there is an appeal, then the suggestion is re-evaluated under the supervision of senior management.
Reward	The Healthcare facility does not consider the reward system, and the facility believes that allowance is enough for employees.	The Healthcare facility has no scheme for the suggestion system and not applying it fairly. The system is not transparent. However, the facility trying to develop a reward system and policy. It has a limited range of rewards without a fixed strategic vision.	The Healthcare facility has transparent reward system and policy. There is a wide range of reward distributed professionally to employees with a strategic vision. The top administration has a transparent scheme updated yearly for employees depending on their situations. Top administration usually revised and increased/decreased based on the updated strategies of the healthcare facility. Rewards can be tangible and nontangible. Innovative

			suggestions can be publicized through email, billboard, entered in competitions organized by professional organizations to compete with suggestions from other healthcare facilities.
Ease of Use	The Healthcare facility does not provide clear suggestion stations and formalized system. Employees are asked to submit suggestions occasionally on their sheets of paper or by email with no guideline, feedback, reward and implementation process. The healthcare facility has no available forms or processes. Employees get frustrated and losing time by using the scheme.	The Healthcare facility provides suggestion system to everyone. The person in charge is not available regularly for responding to the system questions and decrees employees frustrations. Employees can access the system and know what, when and how to submit an idea with the right format document—Availability of processes and manuals.	The Healthcare facility has a clear and easy access suggestion system for everyone with strategic objective Processes and manuals in mind. There is a high response from the person in charge of the system for any questions. Top management regularly reviews the processes and systems in place after checking out the responses and suggestions to refines processes and systems to attract more ideas that meet the strategic goals of the healthcare facility. Also, top management sends occasional surveys to check the employees' satisfaction of the system.
Trust	Trust is available in the healthcare facility but no formal system or policy to ensure that. Code of ethics is not available. Top management is not giving enough guarantee to protect its employee for submitting suggestions and continues changes are done on the system. For that, employees can be targeted for submitting a particular idea.	Trust is available by having a contract between the healthcare facility and the employees, ensuring that they will be protected from any adverse consequences if they do or do not submit suggestions. The system respects the code of ethics. Changing in the system is from time to time. Top management guarantees its employees to be safe from the outcomes of the review and implementation of the suggestion.	The top management assures that the part of no harm to the employee suggestions is included in the standard contract of the healthcare facility. Highly considering the code of ethics and played in all the healthcare employees. They guarantee and reinforce its employees to be safe and trust the system by announcing to everyone through social events, sending emails, billboard and social media...The management is working hard to build trust in the scheme and encouraging employees to participate they consult them in changing the system and give them the right to appeal if the employee mistreated

			or being victimised for their idea.
Clear Scope	The scope of the healthcare suggestion system is not clearly specified, no timeline, and there is no guideline on what constitutes and acceptable.	There are clear guidelines for the healthcare scope and what kind of suggestions is needed. The guidelines clearly state what to accept and how to implement, if the suggestion is feasible. Very open range of time and no specified timeline. The evaluation criteria are clearly defined.	The Healthcare facility has clear guidelines for the scope and what kind of suggestions is needed. The guidelines clearly state what to accept, how to implement and a specified timeline if the suggestion is feasible. The evaluation criteria are clearly defined. Annual survey for feedback from employees about the clarity of scope and what can be done to improve the clarity. Top management also seeks the help of external consultants to benchmark the suggestion system with other healthcare facilities.
Anonymity	The Healthcare facility lacks anonymity. The suggestion or the idea is under the control of the supervisor—the management usually used to decide to accept or reject—no exact procedure for privacy process. Evaluation process lacks anonymity, and the evaluators know who is sending suggestion.	Anonymity is embedded in the healthcare suggestion system; ideas can be sent to the supervisor or submitted directly. The procedure is straightforward but might not protect the employee's identity. The evaluation process is anonymous; however, the supervisor has access to know who submitted the suggestion.	Anonymity is embedded and supported by healthcare top management—a straightforward procedure to protect employee identity. The employees are reminded regularly in their periodic meeting that their suggestions treated anonymously. The identity of the submitter is anonymous until the reward is announced. Just the central administrator has access to know the identity of the submitter, and not allowed to disclose the names to anyone.
Autonomy	The healthcare facility does not have autonomy policy. Employees have no freedom to participate in the suggestion system without consulting their supervisors before submitting. No direct channels are available for employees to give their ideas or voice. Some	Autonomy policy is available in the healthcare facility. Employees have the freedom to participate in the suggestion system without consulting their supervisors. The employees have the option to consult or to skip the supervisor, depending on the situation. There are different channels for an employee to	Autonomy policy is available and encouraged by the healthcare top management through different channels emails, billboards, website. Employees have the freedom to participate in the suggestion system without consulting their supervisors. The employees have the option to consult or to skip the supervisor, depending on the situation. Employees have the right to communicate with senior management if they have

	supervisors require consultation while others do not.	participate in the scheme.	any obstacles with the submitting of their ideas (evaluation, feedback, reward).
Problem Solving	Challenge of problem-solving exists in the healthcare facility suggestion system. Employees do not have space, time and not given a chance to brainstorm to find a solution. Top management does not regularly support the employees to participate in solving problems.	Challenge of problem-solving exists in the healthcare facility suggestion system. Top management challenges the employees to participate in solving problems by submitting numbers of suggestion on time and cost-saving however; they are not giving enough space and time for employees to participate and find solutions.	Challenge of problem-solving exists in the healthcare suggestion system. Top management challenges the employees to participate in solving problems by submitting numbers of suggestion on time and cost-saving. The employees are proactive in finding solutions and brainstorming. The management revises periodically the reflect of the changing and how it affects the costs as the suggestion system is a profit centre, not a cost centre.
System and Institutional Factor			
Resources	Resources assigned for the suggestion system is minimal. It depends on the healthcare facility supplies of personal and financial resources. All suggestions are analysed, and feedback is locally in the facility. There is no central division or individual in charge and no set goals for the suggestion system.	The Healthcare facility assigns special resources for the suggestion system and not depending on the facility general supplies. There is a department in charge of the suggestion system. Who can manage and report the system, starting from submitting the idea to reward and sending the feedback.	Top management allocated resources and budget for managing the suggestion system, rewards, recognition, training and other activities associated in operating and promoting the scheme. Each department has an account which allows employees to charge their times spending on formulating, refining and submitting suggestions. Regular and periodical review and adjustment are made on the resources for the suggestion system.
Colleague Support	Colleagues are supporting each other individually in the healthcare facility with no process specified and no training for employees or official gathering to assist each other to provide the right suggestion or feedback.	Colleagues are supporting each other regularly within their department or division by sharing ideas and initiatives for the suggestion system in the healthcare facility. Specialized training is available for encouraging employees on how to help their colleagues to generate ideas.	Top management is regularly supporting their employees to general ideas within their colleagues for the healthcare suggestion system and arranging events for that cause. Employees are involved with the management and know what they are expected for. Budget and training are assigned to train employees on how to help their colleagues to generate

	Employees are not informed of what they are expected for or updated of any management changes.	Employees know what they are expected for and management updates their employee with the facility changes from time to time.	ideas. Successes Suggestion from employees is mentioned and rewarded.
Supervisor Support	Supervisors are not regularly encouraging their employees in the healthcare facility. They do not give time to their employees for improvement and developing their skills in addition to self-satisfaction. The supervisor is not available and might not respond to ideas. It can occasionally happen without any polices or regulations.	Supervisors are regularly encouraging their employees in the healthcare facility by giving them time for brainstorming and self-satisfaction. The supervisor is available and responds to ideas. There is a training session form the supervisor in addition to the training budget for the external and internal trainer to encourages employees.	Top management is motivating Supervisors to encourage their employees in the healthcare facility by giving them time for brainstorming and formulating the ideas. There is a training session scheduled with the supervisor one to one or group ones, in addition to the training budget for the external and internal trainer to encourage employees to submit the suggestion with the desired form and in the right time. The supervisor uses time wisely with employees and develops self-satisfaction to create ideas.
Equality	Lack of equality policy in the healthcare facility. The facility depends on the norms and no available written policy for equity. The employees can participate, but still, there is discrimination between men and woman or minorities. The supervisor controls the process, and there is no transparent equity system to protect employees or giving them there right to revise the feedback from the suggestion system.	The healthcare facility has its Equity policy and available for all employees in the facility manual. It ensures that workers will be protected from any adverse consequences if they do or don't submit suggestions. Top management is trying to develop the system. It guarantees its employees to have their voice and give each one the chance to participate and providing the right to revise the feedback equally from the suggestion system.	The top management in the healthcare facility assures and makes it clear that they are applying their equality policy. The policy is available to everyone in the healthcare intranet system. No rejection to employee suggestions, management guarantee and reinforce its employees to be treated equally and trust the system by announcing to everyone through social events, sending emails, billboard and social media...The management working hard to build a consistent equity environment and encouraging employees to participate and gives them the right to appeal if the employee treated unfairly or being victimised for their idea.

Publicity	Publicity in the healthcare facility occasionally happens with no set pattern or plans. The facility does not invest in publicising for the suggestion system and depend on employee autonomy to participate in the scheme. There is no allocated budget or resources for that.	Publicity in healthcare facility regularly happens with a set pattern or plans. The facility invests in publicising Posters, and internal emails are available to promote the suggestion system. They are working hard to allocate budget for advertising the suggestion system and encouraging employees to participate.	The top management of the healthcare facility encourages regular publicity with a set pattern or plans and believes in investing in the suggestion system. Posters, internal emails, billboard and newsletters are available to promote success stories of the suggestion scheme. There is an allocated budget for advertising the suggestion system, training for the system, and for organising events by top management to recognise individuals who participated in the applied suggestion in addition to sending appreciating emails and writing articles in the newsletter for the best suggestion to encourage employees.
Training	The training programme in the healthcare facility is not available in the facility. There is no budget to train employees to use the suggestion system. However, occasional information and awareness events are organized. The suggestion system is available, but not all workers know how to participate or to apply the forms.	The training programme is available in the healthcare facility for the use of the suggestion system. The healthcare facility believes in the scheme and assigns budget for it. Employees are encouraged to join the training programme. The training programme limited to the mechanism of the suggestion system, filling out the form, process of submission, evaluation and feedback.	The training programme is available in the healthcare facility and mandatory for (improvement of innovation, quality improvement, idea management, and cost-saving). A particular budget is assigned to give a chance to all employees to participate in the suggestion training program. The healthcare facility allocates time off for their employee to attend the required training and is reinforced further from time to time if there are changes. Training can be by inviting external consultants and experts from other organisation to share success stories as well as train the employees in the organisation. Besides, there are opportunities to learn best practices from other organisations in events organised by professional bodies on suggestion systems.
Compliance	Values and norms are clear in the healthcare facility, but the code of conduct is not	Values and norms are clear in the healthcare facility, and the code of conduct is available in the system. It supports	The top management in the healthcare facility assures that code of conduct is available and clear to all employees and part of the

	available in the system. It might affect employee suggestions and make it not supporting the facility manner; therefore, it can be rejected and have a personal, cultural and religious collision.	the employee suggestions, makes it appropriate and applicable to the system. Accordingly, there will be no collision to personal, cultural and religious conservations in the ideas.	standard contract. Reminders and announcement are sent regularly to employees for the code of conduct through billboard, social media, email. Top management revised the code of conduct annually to guarantee that it is applicable. Ensuring all suggestion are useful under an exact compliance program that can help avoid any collision.
Social Support Factor			
Social Media	Social media is available in the healthcare facility. There is no consistency or planned system to benefits from social media. The system is not considering or responding to social media as a suggestion tool. Not all employees can have access to social media and share their ideas or to receive messages from management.	Social media is available in the healthcare facility. The system is responding and considering social media as a useful suggestion tool. There is a web 2.0 platform to allow employees to share ideas, data, personal messages and other online activities from management to encourage and advertise for suggestions system.	Top management in the healthcare facility encourages social media, and there is a planned system to utilizing it through web 2.0 like Facebook, Twitter and other blogs between employees, management and senior officers. Regular communication through the platform is available to update employees of the healthcare facility, changing strategies, improvement, idea negotiations and what the facility is targeting. Top management assures that all kind of employee participating, especially who has no access or not familiar to computers to have the opportunity to be trained and have access to public PC's.
Social Networking	Networking is available in the healthcare facility, and social events are irregular and informally not planned between employees to share success stories. The facility does not arrange a formal gathering to exchange ideas and depend on the informal ones.	Networking is available in the healthcare facility and socialising through chat rooms and blogs between employees to enrich the suggestion scheme. The facility arranges formal gathering irregularly to share ideas, success stories, and find solutions.	Top management in the healthcare facility encourages Online socialising through chat rooms and blogs between employees, management, senior officers. Also, organising Social events regularly between all healthcare employees and discuss with them about changing strategies of the facility. Top management assures that all kind of employee participating, especially workers who have no access to computers or they are not

			familiar to computers to attend physical on-site social events. The management believes that investing in exchanging ideas and experience enrich employees and generate more ideas for the suggestion system furthermore affect positively to the healthcare facility..

Appendix E: The Refined Maturity Model

Success Factor	Low The healthcare facility has no clear direction	Medium Implemented in a healthcare facility but neither monitored nor followed up by top management	High Top management in a healthcare facility has active involvement and regular follow-up
1. Personal Factor			
1.1 Feedback	The Healthcare facility feedback is not time accurate, and they have no fixed format of reply back. In some cases, the system is available but not activated, plus there is no response.	The Healthcare facility has accurate feedback with fixed format and timing. However, the person-in-charge the feedback system does not use these forms very often to cover the details and not replying at the right time.	The Healthcare facility has a fixed and timely feedback with a frequent use. The top management ensures the regular follow up schedule to examine the feedback process. The person who is responsible for the feedback is committed to a fixed form and replying at the right time with a set calendar. The evaluation criteria of the feedback policy are regularly revised based on the developed strategy of healthcare as needed. The reviewers receive information occasionally from top management on changing priorities of the healthcare facility. Moreover, there are circumstances when senior management can also consider appeals against the feedback. There is an appealing process in case of dissatisfaction regarding the suggestion evaluation, in which the suggestion is re-evaluated again under the supervision of senior management.
1.2 Reward	The Healthcare facility does not offer any additional rewards and the facility believes that the basic salary is enough for employees.	The Healthcare facility offers limited range of rewards, but without a long-range strategic vision. Moreover, the reward scheme is neither completely transparent nor it is applied with fill fairness. However, the facility is trying to develop a more	The Healthcare facility has a transparent reward system and policy, in which a wide range of rewards are professionally distributed to employees with a strategic vision. The top administration has a transparent scheme for employees, which is regularly updated on a yearly basis. The top administration regularly

		robust and fair reward system.	revises their rewards, and this increase or decrease is done depending upon the updated strategies of the healthcare facility. However, these rewards can be either tangible or non-tangible. In this regard, innovative suggestions are publicised through email, billboard or they are entered in competitions being organised by professional organisations. They do this exercise to benchmark suggestions coming from various healthcare facilities.
1.3 Ease of Use	The Healthcare facility does not provide any suggestion platforms or formalised systems. Occasionally, employees are asked to submit their suggestions with the help of paper sheets or emails. However, during this process, they are not provided any kind of guidelines, feedback or rewards to ensure its successful implementation. As a result, employees not only develop frustration but also lose their time.	The Healthcare facility provides the suggestion platforms and formalised systems to everyone. However, the person-in-charge is either unavailable or not responding to the queries, due to which frustration is developed among the employees. Employees have access to the system and know how to submit an idea at the right time and in the right format. Furthermore, manuals and processing guidelines are also available to them.	The Healthcare facility has clear and easy to access suggestion platforms. These systems are available to everyone with clear strategic objectives, processes and guiding manuals. A person in-charge is always available to respond to different kind of queries and questions. Top management regularly reviews the suggestion platforms to ensure their alignment with the organisations strategic vision. The purpose of refining these processes is to attract more ideas meeting the strategic goals of the healthcare facility. Furthermore, the top management regularly sends feedback surveys to check the satisfaction level of employees from these systems.
1.4 Trust	Trust is available in the healthcare suggestion platforms, but no formal systems, policy or code of ethics are there. Top management is not giving sufficient guarantees to protect employee's rights in the backdrop of	Trust is available in the healthcare suggestion platforms with formal systems, policy or code of ethics in place. No formal agreements are available between the healthcare facility and the employees, ensuring their protection from any	Trust is available in the healthcare suggestion platforms with formal systems, policy and code of ethics in place. Formal agreements are available between the healthcare facility and the employees, ensuring their protection from any adverse consequences. The health care facility highly considers the code of ethics and apply

	submitted ideas and suggestions. The trust deficit is there due to frequent changes in the suggestion platforms besides targeting employees for any particular idea.	adverse consequences. The system respects the code of ethics, besides having less frequent changes from time to time. Top management guarantees its employees to be safe from reviewed outcomes and suggestion implementation.	it to their employees. The management offers guarantees and reinforces the safety of their employees through social events, emails, billboard and social media. The management works hard to build trust in the scheme and encourage their employees to have active participation. The top management also consults their employees about changes being made in the system. In addition, the management also gives employees the right to appeal against any mistreatment or victimisation for their ideas.
1.5 Clear Scope	The scope of the healthcare suggestion platforms is not clearly specified with no timeline. Also, there is no guideline about the constitution of acceptable suggestions/ideas.	Partially clear guidelines for the scope of healthcare suggestion platforms. The guidelines clearly state what to accept and how to implement, in case if the suggestions are feasible. However, the timeline is occasionally specified with abstract evaluation criteria.	The Healthcare facility has clear guidelines for the scope and kind of needed suggestions. The guidelines clearly state what to accept and how to implement a specified timeline and evaluation criteria. Annual survey for employee's feedback is conducted to improve the clarity further. Top management also seeks the help of external consultants to benchmark the suggestion system in light of other healthcare facilities.
1.6 Anonymity	Healthcare suggestion platforms lack anonymity. The suggestion or the idea is under the control of the supervisor/ management, who usually decides to accept or reject the ideas without adopting any formal procedure. Moreover, the privacy of the process is also nor ensured. Evaluation process lacks	Anonymity is occasionally embedded in the healthcare suggestion platforms system. The ideas are directly sent to the supervisor or management. The procedure is straightforward but does not provide sufficient security to employee's identity. Although, the evaluation process is anonymous; however, the supervisor has	Anonymity is formally embedded in the healthcare suggestion platforms system by the top management. A straightforward procedure is adopted to protect employee identity. Moreover, the employees are regularly reminded during periodic meetings that their suggestions are treated anonymously. The identity of the submitter is anonymous from the supervisor. However, the central administrator has access to see the submitter's identity, but not

	anonymity, and the evaluators exactly know, who is sending these suggestions.	access to see the identity of the submitter.	allowed to disclose the names to anyone.
1.7 Autonomy	The healthcare facility does not have an autonomous policy. Employees have no freedom to participate in healthcare suggestion platforms without consulting their supervisors. No direct channels are available for employees to give their ideas or suggestions. Meanwhile, some supervisors need consultation while others do not.	The healthcare facility has a partial autonomous policy. Employees have partial freedom to participate in the suggestion system without consulting their supervisors. The employees have less autonomy to consult or skip the supervisor based on the situation. Moreover, different channels are available for employees to participate in the scheme.	The healthcare facility has a formal autonomous policy. Employees have the complete freedom to participate in the suggestion system without consulting their supervisors. Autonomy policy is available and encouraged by the healthcare top management through different channels emails, billboards and website. The employees have more autonomy to consult or skip the supervisor based on the situation. Employees have the right to communicate with senior management if they have any obstacles with the submitting ideas, evaluation, feedback or rewards.
1.8 Problem Solving	Problems are not clearly defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees do not have the flexibility, time and chance to brainstorm the solutions. Top management does not encourage the employees to participate in solving healthcare facility issues.	Problems are occasionally defined to solicit suggestions in the healthcare suggestion platforms. Due to which, employees have the partial flexibility, time and chance to brainstorm the solutions. Top management occasionally encourages the employees to participate in providing cost-effective healthcare facility issues.	Problems are clearly stated to receive suggestions in the health care suggestion platforms. The top management challenges employee's creativity for their active participation in problem-solving. Furthermore, timely and cost-effective suggestions are also encouraged. The employees show creativity in finding effective and efficient solutions. The management periodically revises the ongoing changes to ensure the efficiency of the suggestion platforms.
2. System and Institutional Factor			
2.1 Resources	The resources assigned for the suggestion system are minimal. The allocation of resources is rarely based on healthcare facility	The resources for the suggestion system are occasionally available on ad-hoc basis depending on the healthcare facility resources and culture. The top	The resources assigned for the suggestion system are formally structured and well in place. The top management allocated necessary resources and needed budget to manage the suggestion system,

	resources and culture. All suggestions are analysed, and feedback is locally taken in the facility. There is no formal department with dedicated staff to manage the operations of the health care facility suggestion platform.	management of the healthcare facility assigns sporadic resources with no monitoring and follow up. There is a department in charge of the suggestion platform, which is partially responsible for providing the required resources to manage the suggestion process from submission till feedback.	rewards, recognition, training and other related activities. The department in charge of the health care suggestion platform has a separate budget that allows employees to charge for their time spent on formulating, refining and submitting suggestions. Regular and periodical reviews and adjustments are made about the needed resources for the suggestion system.
2.2 Colleague Support	Colleagues are rarely supporting each other and that too in their personal capacity with no formal process available in the healthcare facility. Furthermore, no process of employees training is available to assist each other in providing the right kind of suggestions or feedback. Employees are not informed about the expectations or update of any change in the management policy.	Colleagues are occasionally supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. Non-formal training process is available to encourage employees on how to help their colleagues in the generation of ideas. Employees are occasionally informed about the expectations or update of any change in the management policy.	Colleagues are regularly supporting each other under the guidance of a department or division for sharing of ideas and initiatives in health care suggestion platforms. The top management also encourages their employees to generate new ideas with the support of their colleagues. Furthermore, events are also organised for the development of support culture within the healthcare facility. Sufficient budget and necessary training are available for employees to support their colleagues in the generation of ideas. Employees are always informed about their expectations or update of any change in the management policy.
2.3 Supervisor Support	Supervisors are not encouraging their employees in healthcare suggestion platforms to generate new suggestions or ideas. They do not give sufficient time to their employees for necessary improvements in the development of their skills. The	Supervisors are occasionally encouraging their employees in the healthcare suggestion platforms to generate new suggestions or ideas. They occasionally give time to their employees for necessary improvements in the development of their	Supervisors are always encouraging their employees in the healthcare suggestion platforms to generate new suggestions or ideas. The top management of the healthcare facility regularly motivates their supervisors to encourage employees by giving sufficient time to brainstorm and formulate their ideas. Formal training sessions are scheduled with

	supervisor support is either not available to respond to new ideas or rarely happen without any formal policies or regulations.	skills. The supervisor is occasionally available to responds to new ideas. There is a non-formal training budget and opportunities available to encourage supervisors to support their employees.	concerned supervisors to have either one to one or group discussions for the generation of new ideas. There is a formal training budget and opportunities available to encourage supervisors to support their employees. The supervisor efficiently uses their time with employees and develop self-confidence mong them to create new ideas.
2.4 Equality	There is no formal equality policy available in the healthcare facility suggestion platforms. In the regard, the facility operates on its own norms with no written policy for equity. The employees can participate, but still, there is discrimination among them based on their gender, nationality etc. The management/supervisor controls the whole process. There is no transparent equity system for the protection of employees or giving them the right to revise their feedback about the suggestion system.	There is an irregular equality policy available in the healthcare facility suggestion platforms. It ensures that workers will be protected from any adverse consequences if they do or don't submit any suggestion. The top management tries to develop a system, which guarantees its employees to have their voice. Furthermore, it gives them the chance to participate and provide the right of equal feedback from the suggestion system.	There is a formal/regular equality policy available in the healthcare facility suggestion platforms. Moreover, the top management in the healthcare facility assures that the equality policy should be uniformly applied. The policy is available to everyone in the healthcare intranet system with no option of auto rejection without formal evaluation of the suggestion. The management guarantees and reinforces a belief among its employees that they would be treated equally. Furthermore, the trust in the system is reinforced by announcing the equity policy to everyone through social events, emails, billboard and social media. The management works hard to build an equity environment that encourages its employees to freely participate in the suggestion systems. Besides, it also gives them the right to appeal if any employee is treated unfairly or being victimised for their ideas.

2.5 Publicity	Publicity to acquire new suggestions/ ideas in the healthcare facility rarely happens with no set pattern or plans. The healthcare facility does not invest in any form of publicity for the suggestion systems. It all depends on employees own will to participate or not. There is no allocated budget or other resources available for that.	Publicity to acquire new suggestions/ ideas in the healthcare facility occasionally happens with temporary patterns or plans. The healthcare facility occasionally invests in publicising posters and other social media accounts. Furthermore, internal emails are also available to promote the suggestion system platforms. There is partial allocation of budget or other resources available for necessary publicity.	Publicity to acquire new suggestions/ ideas in the healthcare facility regularly happens with properly structured patterns or plans. Posters, internal emails, billboards and newsletters are regularly available to promote success stories of the suggestion schemes. There is a proper allocation of budget for publicising, training, rewarding and event organising. The top management encourages those employees who participate in the generation and submission of new ideas by announcing their names through emails or in the newsletters.
2.6 Training	The training programme in the healthcare facility is not available. There is no budget to train employees to use the suggestion system. Furthermore, no information and awareness events are organised. No training program is available for the guidance of workers to participate in the generation of new ideas.	The training programme in the healthcare facility is occasionally available. There is a sporadic budget available to train employees for the use of the suggestion platforms. The partial training programme is available in the healthcare facility for the use of the suggestion platforms. Employees are occasionally encouraged to join the training programme. However, the training programme is limited to just filling and submission of forms.	The training programme in the healthcare facility is regularly available. There is a proper budget available to train employees for the use of the suggestion platforms. Employees are motivated through the healthcare facility policy, which encourages them to participate in the training programs. In this regard, the facilitation is given to employees by giving them various incentives, including regular time offs. Training is provided with the help of internal and external consultants/experts to share their success stories. Besides, opportunities are also provided to learn best practices from other organisations with the help of events that are organised by professional bodies on suggestion systems.
2.7 Compliance	Cultural values and norms are partially clear in the healthcare facility, but the code of conduct/ ethics are not adopted in the	Cultural values and norms are properly clear in the healthcare facility, but the code of conduct/ ethics are partially adopted in the	Cultural values and norms are properly clear in the healthcare facility. Also, the code of conduct/ethics are fully adopted in the system. As a result, employee suggestions come in

	system, due to which, employee suggestions are not in compliance with the socio-cultural values and not supportive to the suggestion platforms. Therefore, the submitted suggestions/ ideas are mostly rejected due to their collision with personal, cultural and religious values.	system. Due to which, employee suggestions come in partial compliance with the socio-cultural values and partially supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are less rejected due to their partial collision with personal, cultural and religious values.	complete compliance with the socio-cultural values and fully supportive of the suggestion platforms. Therefore, the submitted suggestions/ ideas are not rejected due to their compliance with personal, cultural and religious values. The top management in the healthcare facility assures that the code of conduct should be available and clear to all employees. Regular reminders and announcement are sent to employees through billboards, social media, email and other communication channels. Besides, the top management regularly reviews the code of conduct to guarantee its compliance and ensure its applicability.
3. Social Support Factor			
3.1 Social Media	Social media is partially available in the healthcare facility with no consistency or planned system to benefit from it. The system is not considering or responding to social media as a suggestion refinement tool. Most of the employees have either no or partial access to social media to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with partial consistency or planned system to benefit from it. The system is sporadically considering or responding to social media as a suggestion refinement tool. Most of the employees have partial access to social media through different web platforms to share their ideas or receive messages from the concerned stakeholders.	Social media is available in the healthcare facility with complete consistency or planned system to benefit from it. The system is formally considering or responding to social media as a suggestion refinement tool. Most of the employees have complete access to social media through different web platforms to share their ideas or receive messages from concerned stakeholders. The top management in the healthcare facility encourages its employees to use social media and other web platforms to conduct useful discussions, get updates on changing strategies, setting new targets or goals. Furthermore, necessary training and resources are provided to those employees, who either have no access to computers or

			not familiar with the required social media tools.
3.2 Social Networking	Social networking is not available in the healthcare facility, and, social events are not organised. Due to which the success stories and new ideas are not shared among employees. The facility does not arrange formal/ informal gatherings to exchange and discuss ideas.	Social networking is occasionally available in the healthcare facility, and social events are sporadically organised. Due to which the success stories and new ideas are partially shared among employees. The facility irregularly arranges formal/ informal gatherings to exchange and discuss ideas.	Social networking is formally available in the healthcare facility, and social events are regularly organised. Due to which the success stories and new ideas are always shared among employees. The facility regularly arranges formal/ informal gatherings to exchange and discuss new ideas. The top management in the healthcare facility encourages online socialising through chat rooms and blogs between employees, management and senior officers. Also, regular organising of social events takes place among healthcare employees, where discussions are conducted on changing strategies and new ideas. Top management ensures that all level of employees should participate regardless of their access to computers or familiarity with social networking e-tools. The management believes that these investment not only enrich employees experience for the generation of new ideas but also impact the performance of suggestion system in a positive way.

Appendix F: AHP

Table F1 Personal Factor AHP Data Collection.

Indicator to be rated	Intensity of Importance									Indicator against which to be rated
	1	2	3	4	5	6	7	8	9	
Feedback										Rewards
Feedback										Ease of Use
Feedback										Trust
Feedback										Clarity of Scope
Feedback										Anonymous
Feedback										Autonomy
Feedback										Problem Solving
Rewards										Ease of Use
Rewards										Trust
Rewards										Clarity of Scope
Rewards										Anonymous
Rewards										Autonomy
Rewards										Problem Solving
Ease of Use										Trust
Ease of Use										Clarity of Scope
Ease of Use										Anonymous
Ease of Use										Autonomy
Ease of Use										Problem Solving
Trust										Clarity of Scope
Trust										Anonymous
Trust										Autonomy
Trust										Problem Solving
Clarity of Scope										Anonymous
Clarity of Scope										Autonomy
Clarity of Scope										Problem Solving
Anonymous										Autonomy
Anonymous										Problem Solving
Autonomy										Problem Solving

Table F2: Personal Factor AHP Data Collection.

		Feedback	Reward	Ease of Use	Trust	Clear Scope	Anonymous	Autonomy	Problem solving
1	**Feedback**	1	5	1/5	1/6	1/6	3	1/5	1/2
2	**Reward**		1	6	4	7	4	2	3
3	**Ease of Use**			1	1/5	2	3	1/5	4
4	**Trust**				1	1	2	1	5
5	**Clear Scope**					1	3	1/5	1/3
6	**Anonymous**						1	5	1/3
7	**Autonomy**							1	1
8	**Problem solving**								1

Table F3 System and Institutional Factor AHP Data Collection.

Indicator to be rated	Intensity of Importance									Indicator against which to be rated
	1	2	3	4	5	6	7	8	9	
Resources										Support of Colleagues
Resources										Supervisory Support
Resources										Equality
Resources										Publicity
Resources										Training
Resources										Compliance
Support of Colleagues										Supervisory Support
Support of Colleagues										Equality
Support of Colleagues										Publicity
Support of Colleagues										Training
Support of Colleagues										Compliance
Supervisory Support										Equality
Supervisory Support										Publicity
Supervisory Support										Training
Supervisory Support										Compliance
Equality										Publicity
Equality										Training
Equality										Compliance

Publicity										Training
Publicity										Compliance
Training										Compliance

Table F4 System and Institutional Factor AHP Data Collection.

		Resources	**Colleague Support**	**Supervisor Support**	**Equality**	**Publicity**	**Training**	**Compliance**
1	**Resources**	1	3	2	1/5	6	5	2
2	**Colleague Support**		1	1/2	1/2	2	3	1
3	**Supervisor Support**			1	5	5	3	3
4	**Equality**				1	1/2	1/5	1
5	**Publicity**					1	1	2
6	**Training**						1	5
7	**Compliance**							1

Table F5 Social Support Factor AHP Data Collection**.**

Indicator to be rated	Intensity of Importance									Indicator against which to be rated
	1	2	3	4	5	6	7	8	9	
Social Networking										Social Media

Table F6 Social Support Factor AHP Data Collection.

		Social Networking	Social Media
1	Social Networking	1	1/5
2	Social Media	5	1

Table F7 Overall AHP Data Collection.

Indicator to be rated	Intensity of Importance									Indicator against which to be rated
	1	2	3	4	5	6	7	8	9	
Personal Factor										System and Institutional Factor
Personal Factor										Social Support Factor
System and Institutional Factor										Social Support Factor

Table F8 Overall AHP Data Collection.

	Personal Factors	**System and Institutional Factors**	**Social Support Factors**
Personal Factors	1	2	3
System and Institutional Factors	1/2	1	4
Social Support Factors	1/3	1/4	1

Appendix G: Illustrative Example on the Calculations of Latent Factor and the Overall Maturity Scores

In the case studies presented in this thesis, the first step after the identification of maturity stages for different variables or success factors would be to calculate the maturity stage of each latent factor. A latent factor maturity score will be calculated based on the following equation,

$$\frac{\sum_1^{n_i}(variable's\ priority\ or\ ranked\ impotance\ \times\ its\ corresponding\ observed\ maturity\ level)}{\sum_1^{n_i}(priorities)} \quad (\mathbf{1})$$

Where, n_i represents the number of variables or success factors in latent factor *(i), and i = 1 (Personal), 2 (System and Institutional), and 3 (Social Support).*

On the other hand, the overall usability maturity will be calculated using the following equation.

$$\frac{\sum_{i=1}^{3}(latent\ factor\ (i)\ priority\ or\ ranked\ impotance \times its\ corresponding\ calculated\ \ maturity\ score)}{\sum_{i=1}^{3}(latent\ factor\ (i)\ priority)} \quad (\mathbf{2})$$

An illustrative example of calculating latent maturity score and the overall usability maturity score is given next and based on Case Study A analysis.

Latent Factor/ Success Factor	Low *(1)* The healthcare facility has no clear direction	Medium **(2)** Implemented in a healthcare facility but neither monitored nor followed up by top management	High **(3)** Top management in a healthcare facility has active involvement and regular follow-up
Personal Factor			
Feedback **(1)**		***2***	
Reward **(8)**		***2***	
Ease of Use **(7)**			***3***
Trust **(4)**		***2***	
Clear Scope **(6)**			***3***
Anonymity **(3)**	***1***		
Autonomy **(5)**		***2***	
Problem Solving **(2)**		***2***	
System and Institutional Factor			
Resources **(1)**		***2***	
Colleague Support **(3)**	***1***		
Supervisor Support **(6)**		***2***	
Equality **(1)**	***1***		
Publicity **(4)**		***2***	
Training **(5)**	***1***		
Compliance **(2)**			***3***
Social Support Factor			
Social Media **(2)**		**2**	
Social Networking **(1)**		**2**	

Numbers in parenthesis represent each success factor priority or ranked importance, calculated based using the AHP, while their corresponding numbers, in *italics*, represent the observed maturity level bases on the refined maturity model as a rubric.

- The maturity score of the Personal factor is calculated as follows:

$$\frac{\sum(1\times2)+(8\times2)+(7\times3)+(4\times2)+(6\times3)+(3\times1)+(5\times2)+(2\times2)}{8+7+6+5+4+3+2+1} = 2.28$$

- Similarly, the maturity score of the System and Institutional factor is

$$\frac{\sum(1\times2)+(3\times1)+(6\times2)+(1\times1)+(4\times2)+(5\times1)+(2\times3)}{7+6+5+4+3+2+1} = 1.32$$

- And, the maturity score of the Social Support factor is

$$\frac{\sum(2\times2)+(1\times2)}{2+1} = 2.0$$

- The Overall Maturity of Case Study A suggestion system is

$$\frac{\sum(3\times2.28)+(2\times1.32)+(1*2.0)}{3+2+1} = 1.91$$